THE DICTIONARY

OF

STATISTICS

BY

MICHAEL G. MULHALL

FELLOW OF THE ROYAL STATISTICAL SOCIETY

MEMBER OF THE COMMITTEE OF THE BRITISH ASSOCIATION

HONORARY CORRESPONDING MEMBER OF THE ROYAL SCOTTISH GEOGRAPHICAL SOCIETY

AUTHOR OF "THE PROGRESS OF THE WORLD," "THE HISTORY OF PRICES," ETC.

"Je n'impose rien ; je ne propose même rien ; j'expose."—DUNOYER
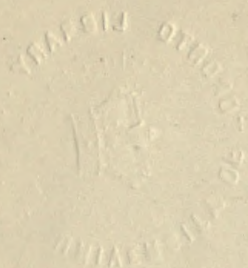
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TO

THE MOST IMPARTIAL OF CRITICS

AND THE BEST OF COUNSELLORS,

MY WIFE,

𝕴 𝔇𝔢𝔡𝔦𝔠𝔞𝔱𝔢 𝔱𝔥𝔦𝔰 𝔅𝔬𝔬𝔨.

PREFACE.

IN bringing to conclusion a work which has occupied a considerable portion of my life, I feel that the task might easily have fallen into more skilful hands. It was self-imposed, for two reasons; because a work of this kind has been greatly needed, and because all my predecessors and contemporaries have recoiled in dismay from the years of labour which it involved. In 1884 I brought out what may be termed a pocket edition, about one-fifth of the size of the present complete Dictionary. Not that it is now complete in a strict sense of the word, but that it exhausts all the statistical information which I have been able to collect. Small and unpretending as the first effort was, it received such favour from the public as sufficed to show that it partly met the want previously felt in this important field of science. There is no record in any European language of a work of this description, but it is quite possible that the Chinese, who were so early and indefatigable in many regards, may prove some day that this is not really the first Dictionary of Statistics. There have been, indeed, various Dictionaries of Commerce and Geography, before those of M'Culloch, not to speak of Gazetteers and Almanacs. Nor have efforts been wanting on the part of the most famous statisticians in Europe to classify and publish in a well-digested form the official and semi-official returns bearing upon many very interesting questions. All such publications, however, were more or less spasmodic and unconnected. To collect them in alphabetical order, to arrange them in proportions suitable to the importance of the subject; this was a task of greater magnitude than any one can imagine.

Each of the larger subjects is introduced with a conspectus or general table, showing the figures approximately for each country every ten years. Then each country is dealt with in detail, showing the official or non-official statements at successive epochs.

I have freely used the works of others, because there is no copyright in statistics, and because I expect others to use my works (as they do every day) without any recognition. If I were to append at the foot of each page the names of the authors consulted, it would swell the Dictionary to undue dimensions. I have, therefore, preferred to put before the Index, at the end, a list of the most useful works of reference on the principal subjects treated.

None but English weights, money, and measures are used, and in those countries where inconvertible paper-money was used for a time, or at present exists, the value is reduced to a gold equivalent.

As the merit of a work of this kind depends neither on scientific treatment nor elegance of style, but on accuracy and simplicity, I have postponed every other consideration to the last two. It must happen, nevertheless, that numerous errors occur, and I shall feel most grateful to those persons who may point them out, either in the columns of the London daily papers or in a letter addressed to me under cover to the publishers, Messrs. GEORGE ROUTLEDGE & SONS, Limited, Ludgate Hill, London.

<div align="right">MICHAEL G. MULHALL.</div>

November 1891.

Opinions on the Author's Works.

"This admirable dictionary."—*Emile de Laveleye.*
"The quintessence of statistics."—*Leroy Beaulieu.*
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"The model of a statistical work."—*Mark Lane Gazette.*

DIAGRAMS.

ERRATA.

Page	Line	Instead of	Read
15	4	$1\frac{1}{4}$ tons	$1\frac{1}{2}$ tons
67	7	per 1,000 inhab.	per 10,000
174	18	9,400 tons	$9\frac{1}{2}$ tons
279	44	36,600	36,600,000
307	16	Potosia	Potosi
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DICTIONARY OF STATISTICS.

A

AEROLITES

Date	Locality	Weight (lbs.)	Remarks
1748	Yenisey . . .	1,600	...
1783	Gran Chaco . .	32,000	Near Tucuman.
1784	Bendego, Brazil	17,000	...
1793	Graf Reinet . .	300	South Africa.
1803	Normandy . .	...	2000 red-hot stones.
1812	Prague . . .	...	200 hot stones.
1829	Bohnmelitz . .	103	Bohemia.
1866	Kuyahinza . .	670	With 1000 smaller.
1870	Greenland . .	49,000	Now at Copenhagen.
1871	Greenland . .	20,000	Now at St. Petersburg.

The last two were found in the years expressed, but may have fallen centuries ago. That of Gran Chaco is 95 per cent. iron. The British Museum has an aerolite weighing five tons.

AGE

The age of various nations in ratios of 1000 was stated by Wappaeus in 1850 thus :—

Age	France	Belgium	Holland	Denmark	Norway	Sweden	Italy	Canada
Under 5	93	116	113	125	135	126	119	183
5-10	92	109	111	108	114	107	114	144
10-15	88	98	108	95	100	96	107	122
15-20	88	90	93	95	86	98	101	116
20-30	163	166	174	181	174	177	168	169
30-40	148	135	134	130	136	135	134	106
40-50	125	118	106	109	88	100	105	74
50-60	102	78	82	75	78	83	78	47
60-70	65	55	49	53	57	51	51	24
Over 70	36	35	30	29	32	27	23	15
Total	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

The classification by the Bureau of Statistics in 1864 was as follows :—

Age	England	France	Belgium	Portugal	Spain	Italy	Medium
Under 10	251	186	206	241	249	244	229
10-20	201	169	191	185	193	192	189
20-30	169	164	165	168	171	170	168
30-40	130	144	140	142	151	143	142
40-50	103	125	116	115	107	107	112
50-60	71	101	94	78	72	79	82
60-70	47	72	55	49	42	44	52
Over 70	28	39	33	22	15	21	26
Total	1,000	1,000	1,000	1,000	1,000	1,000	1,000

According to the Bulletin Statistique the ratios in 1876 stood thus :—

Age	France	Belgium	Holland	Prussia	Sweden	Italy	Spain	Switzerland	Hungary
Under 15	272	302	329	353	323	323	348	315	372
15-60	610	610	591	577	597	595	590	595	579
Over 60	118	88	80	70	80	82	62	90	49
Total	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

The following table of age ratios in 1000 of population is from Census reports of the various nations :—

Country	Date	Under 5 Yrs.	5-20	20-40	40-60	Over 60
England . . .	1881	136	326	297	169	72
Scotland . . .	1881	137	331	290	165	77
Ireland . . .	1881	111	348	263	172	106
United Kingdom	1881	131	331	292	169	77
France . . .	1881	92	261	290	226	126
Prussia . . .	1880	139	315	290	180	76
Germany . . .	1871	127	308	298	190	77
Austria . . .	1880	132	304	298	195	71
Russia	1875	138	318	318	180	46
Finland . . .	1870	144	299	296	186	75
Italy	1871	123	293	306	196	82
Spain	1866	142	278	343	179	58
Portugal . . .	1864	137	289	310	193	71
Sweden . . .	1870	118	313	312	183	78
Norway . . .	1870	135	299	310	166	90
Denmark . . .	1870	125	297	310	184	84
Belgium . . .	1880	124	304	282	195	95
Holland . . .	1870	113	314	309	187	77
Switzerland . .	1880	117	296	289	209	89
Greece	1870	144	332	320	148	56
Brazil	1870	108	353	306	146	87
United States .	1880	137	342	310	155	56
Average . .	...	128	308	306	182	76

In the above table it will be observed that the lowest ratios of children are in France, Brazil, and Ireland. This is explained in the case of Ireland by the fact that the marriage rate is the lowest in the world. Moreover, the highest ratios for people over 60 years are in France and Ireland. The countries in which children form the largest ratios are Finland, Greece, and Spain, although the birth-rates in those countries are by no means the highest ; it is explained in the case of Greece and Spain by the short span of life, the proportion of persons passing their sixtieth year, as shown above, being very low.

Another distribution is as follows:—

Age	France	Prussia	Austria Proper	Russia	Italy	Sweden	Belgium	Switzerland	United States	Average
Under 10	183	254	240	253	226	234	236	222	262	234
10-20	170	200	196	203	190	197	192	191	217	195
20-30	158	162	159	188	167	152	155	153	183	164
30-40	137	128	139	130	139	130	127	136	127	133
40-50	123	101	109	99	111	119	108	116	93	109
50-60	103	79	86	81	85	90	87	93	62	85
Over 60	126	76	71	46	82	78	95	89	56	80
Total	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

AVERAGE AGE OF ALL LIVING IN EACH COUNTRY

Years

England 26.0 | Prussia 27.1 | Sweden . 28.3 | Portugal 27.6
Scotland 26.0 | Austria 27.6 | Belgium . 28.8 | Norway 28.0
Ireland 27.5 | Russia 25.6 | Switzerland 29.2 | Denmark 28.0
France 32.6 | Italy . 28.5 | U. States . 25.0 | Greece . 25.2
Holland 26.0 | Spain 26.9 | Brazil . . 27.0 | Average 27.5

MALES OF WORKING AGE

If we assume the working age to be from 20 to 60 years, and count only male workers, the number of population dependent on the earnings of every 100 male adults would be as follows:—

France . . 387 | Belgium . . 418 | U. States . . 440
Spain . . 398 | Sweden . . 420 | U. Kingdom 448
Austria . 413 | Italy . . . 424 | Scotland . 463
Germany . 417 | England . 438 | Ireland . . 476

The burden on the working population in Ireland is 10 per cent. heavier than in England, 23 per cent. heavier than in France.

VARIOUS CITIES

Age	London	Paris	St. Petersburg	Prague	Liverpool	Manchester	Birmingham
Under 5	130	71	69	83	134	135	139
5-20	297	216	233	265	268	312	327
20-40	334	398	301	355	337	330	310
40-60	177	242	283	202	174	171	168
Over 60	62	73	114	85	87	52	56
Total	1,000	1,000	1,000	1,000	1,000	1,000	1,000

UNITED KINGDOM

The ratios for the three kingdoms by Census reports were:—

Age	England		Scotland		Ireland	
	1841	1881	1841	1881	1841	1881
Under 5	134	136	130	137	126	111
5-10	126	121	118	121	132	120
10-15	108	108	112	108	124	119
15-20	100	98	104	101	108	108
20-25	97	90	100	92	96	92
25-35	154	146	153	141	145	122
35-45	112	112	110	109	106	108
45-55	86	84	76	82	75	86
55-65	53	59	52	59	54	70
Over 65	44	46	45	50	34	64
Total	1,000	1,000	1,000	1,000	1,000	1,000

The composition of the population of England and Wales as regards sex and age in 1881 compares with 1841 thus:—

Age	Per 1000 Inhabitants					
	1841			1881		
	Males	Females	Total	Males	Females	Total
Under 5	66	66	132	68	68	136
5-15	115	113	228	114	115	229
15-25	94	103	197	92	96	188
25-35	74	80	154	70	76	146
35-45	55	57	112	54	58	112
45-55	39	41	80	40	44	84
Over 55	46	51	97	49	56	105
Total	489	511	1,000	487	513	1,000

The composition of Scotland in the same year was as follows:—

Age	1841			1881		
	Males	Females	Total	Males	Females	Total
Under 5	66	64	130	69	68	137
5-15	117	113	230	116	113	229
15-25	97	107	204	96	97	193
25-35	72	81	153	67	74	141
35-45	51	59	110	50	59	109
45-55	35	41	76	37	45	82
Over 55	42	55	97	46	63	109
Total	480	520	1,000	481	519	1,000

The population of Ireland was composed as follows:—

Age	Per 1000 Inhabitants					
	1841			1881		
	Males	Females	Total	Males	Females	Total
Under 5	64	62	126	56	55	111
5-15	130	126	256	122	117	239
15-25	99	105	204	98	102	200
25-35	69	76	145	57	65	122
35-45	51	55	106	51	57	108
45-55	36	39	75	41	45	86
Over 55	43	45	88	65	69	134
Total	492	508	1,000	490	510	1,000

The composition of the United Kingdom was as follows:—

Age	1841			1881		
	Males	Females	Total	Males	Females	Total
0-15	186	182	368	182	181	363
15-45	221	238	459	214	229	443
45-55	38	40	78	40	44	84
Over 55	46	49	95	51	59	110
Total	491	509	1,000	487	513	1,000

FRANCE

The effects of the Franco-Prussian War (1870–71) are visible in the diminished ratio of population of the age 15 to 60 in the Census returns of 1872.

The following table includes males and females :—

Age	1851	1861	1866	1872	1876	1881
Under 15 . .	282	275	272	279	272	266
15–60 . . .	618	619	617	606	610	608
Over 60 . . .	100	106	111	115	118	126
Total . .	1,000	1,000	1,000	1,000	1,000	1,000

The composition of the population of France as regards sex and age in 1881 compared with 1851 as follows :—

Age	Per 1000 Inhabitants					
	1851			1881		
	Males	Females	Total	Males	Females	Total
Under 5	47	46	93	46	46	92
5–15	92	88	180	88	86	174
15–25	85	86	171	88	90	178
25–35	78	78	156	70	68	138
35–45	69	68	137	67	65	132
45–55	59	58	117	56	58	114
Over 55	67	79	146	84	88	172
Total	497	503	1,000	499	501	1,000

There is a marked decline in men and women of the best age, as shown thus :—

	Ratio per 1000 Inhabitants	
	1851	1881
Men between 15 and 55 . . .	291	281
Women between 15 and 45 . .	232	223

GERMANY (1885)

Years	Prussia	Bavaria	Saxony	All Germany
0–5	134	124	135	131
5–10	119	115	117	118
10–15	106	105	105	106
15–20	95	92	96	94
20–30	163	148	171	161
30–40	127	125	133	126
40–50	103	111	100	106
50–60	75	86	73	77
60–70	53	62	49	55
Over 70	25	32	21	26
	1,000	1,000	1,000	1,000

In Prussia in 1867 the average age of the inhabitants was as follows :—

					Years	
					Males	Females
Unmarried	.	.	.	.	14.9	14.7
Married	.	.	.	.	44.2	40.8
Widowed	.	.	.	.	61.5	58.2

The composition of the population of Prussia as to sex and age in 1880 compared with 1843 thus :—

Age	Per 1000 Inhabitants					
	1843			1880		
	Males	Females	Total	Males	Females	Total
Under 5	76	74	150	70	69	139
5–15	99	97	196	110	109	219
15–45	242	242	484	216	225	441
45–60	54	58	112	60	65	125
Over 60	28	30	58	36	40	76
Total	499	501	1,000	492	508	1,000

Males (1885)

Age	Prussia	Bavaria	Saxony	Wurtemberg	Minor States	Total
0–5	1,880,000	330,000	210,000	125,000	475,000	3,020,000
5–10	1,700,000	310,000	185,000	120,000	455,000	2,770,000
10–15	1,520,000	280,000	165,000	110,000	420,000	2,495,000
15–20	1,350,000	250,000	150,000	90,000	365,000	2,205,000
20–30	2,260,000	390,000	260,000	130,000	645,000	3,685,000
30–40	1,760,000	330,000	210,000	115,000	485,000	2,900,000
40–50	1,410,000	290,000	150,000	110,000	430,000	2,390,000
50–60	1,005,000	220,000	110,000	75,000	300,000	1,710,000
60–70	700,000	160,000	70,000	55,000	205,000	1,190,000
70–80	270,000	70,000	25,000	25,000	90,000	480,000
Over 80	40,000	10,000	5,000	5,000	30,000	90,000
Total	13,895,000	2,640,000	1,540,000	960,000	3,900,000	22,935,000

Females

Age	Prussia	Bavaria	Saxony	Wurtemberg	Minor States	Total
0–5	1,850,000	335,000	210,000	125,000	490,000	3,010,000
5–10	1,690,000	315,000	190,000	125,000	450,000	2,770,000
10–15	1,505,000	290,000	170,000	115,000	415,000	2,495,000
15–20	1,355,000	255,000	155,000	95,000	375,000	2,235,000
20–30	2,370,000	410,000	280,000	145,000	630,000	3,835,000
30–40	1,840,000	350,000	215,000	125,000	515,000	3,045,000
40–50	1,510,000	310,000	165,000	120,000	450,000	2,555,000
50–60	1,120,000	240,000	125,000	85,000	340,000	1,910,000
60–70	805,000	180,000	85,000	60,000	245,000	1,375,000
70–80	320,000	80,000	35,000	30,000	105,000	570,000
Over 80	55,000	15,000	10,000	5,000	35,000	120,000
Total	14,420,000	2,780,000	1,640,000	1,030,000	4,050,000	23,920,000

RUSSIA

The ratios of age, with distinction of sex, were in 1875 as follows :—

Age	Urban		Rural	
	Males	Females	Males	Females
Under 5	108	114	146	138
5–10	89	96	120	115
10–20	228	206	208	194
20–40	358	337	305	322
40–60	166	182	176	186
Over 60	51	65	45	45
Total	1,000	1,000	1,000	1,000

AUSTRIA

The population of Austria (without Hungary) was composed as to age and sex in the Census of 1880 thus :—

Age	Per 1000 Inhabitants		
	Males	Females	Total
Under 5	65	66	131
5–15	103	104	207
15–30	125	131	256
30–45	94	101	195
45–60	63	70	133
Over 60	39	39	78
Total	489	511	1,000

The following table shows the actual number of persons of either sex at the different ages.

Age	Males	Females	Total
0–5	1,450,000	1,465,000	2,915,000
5–10	1,210,000	1,210,000	2,420,000
10–15	1,090,000	1,105,000	2,195,000
15–20	1,020,000	1,065,000	2,085,000
20–30	1,750,000	1,835,000	3,585,000
30–40	1,440,000	1,530,000	2,970,000
40–50	1,180,000	1,270,000	2,450,000
50–60	865,000	975,000	1,840,000
60–70	570,000	610,000	1,180,000
70–80	210,000	220,000	430,000
Over 80	35,000	45,000	80,000
Total	10,820,000	11,325,000	22,145,000

The following table, likewise taken from the Census of 1880, shows the age of married, single, and widowed persons.

Age	Married	Single	Widowed	Total
0–20	50,000	9,560,000	...	9,610,000
20–25	405,000	1,535,000	5,000	1,945,000
25–30	905,000	720,000	15,000	1,640,000
30–40	2,260,000	625,000	85,000	2,970,000
40–50	1,935,000	330,000	185,000	2,450,000
50–60	1,305,000	220,000	315,000	1,840,000
60–70	670,000	140,000	370,000	1,180,000
70–80	165,000	50,000	215,000	430,000
Over 80	20,000	10,000	50,000	80,000
Total	7,715,000	13,190,000	1,240,000	22,145,000

ITALY

In 1871 the population was composed as follows :—

Age	Per 1000 Inhabitants		
	Males	Females	Total
Under 5	62	61	123
5–15	101	99	200
15–25	90	90	180
25–35	76	76	152
35–45	64	61	125
45–55	50	49	99
Over 55	59	62	121
Total	502	498	1,000

In 1879 the urban population was 8,824,000, in a total of 28,437,000, say, 31 per cent.

SWITZERLAND

In 1880 the population as to age and sex was composed as follows :—

Age	Per 1000 Inhabitants		
	Males	Females	Total
Under 5	58	58	116
5–15	101	101	202
15–30	122	126	248
30–45	96	102	198
45–60	71	77	148
Over 60	42	46	88
Total	490	510	1,000

BELGIUM

The composition of the population according to age and sex was as follows :—

Year	1846			1880		
	Males	Females	Total	Males	Females	Total
Under 1	22	22	22	27	27	27
1–5	95	93	94	98	96	97
5–10	110	108	109	112	110	111
10–15	100	96	98	101	99	100
15–20	91	89	90	93	91	92
21–30	167	165	166	154	154	154
31–40	137	133	135	127	127	127
41–50	121	115	118	108	106	107
51–60	72	84	78	86	86	86
61–70	51	59	55	57	61	59
Over 70	34	36	35	37	43	40
Total	1,000	1,000	1,000	1,000	1,000	1,000

SWEDEN

The ratios in this country were as follows :—

Age	1750	1785	1810	1835	1860	1875
Under 15	336	313	318	352	335	323
15–60	564	600	597	569	583	597
Over 60	100	87	85	79	82	80
Total	1,000	1,000	1,000	1,000	1,000	1,000

NORWAY

Age	Urban	Rural	Rich	Poor	All Norway
Under 5	140	135	137	133	136
5–15	207	228	242	220	225
15–30	278	239	211	256	245
30–45	206	183	172	190	186
45–60	110	120	130	114	118
Over 60	59	95	108	87	90
Total	1,000	1,000	1,000	1,000	1,000

GREECE

The population in 1879 was composed as follows :—

Age	Per 1000 Inhabitants		
	Males	Females	Total
Under 5 . . .	78	70	148
5–15	129	111	240
15–20	46	51	97
20–40	160	149	309
40–60	82	69	151
Over 60 . . .	30	25	55
Total . . .	525	475	1,000

UNITED STATES

The ratios in the United States since 1830 have been :—

Age	1830	1840	1850	1860	1870	1880
Under 5 . . .	180	174	151	154	143	137
5–20 . . .	381	373	373	358	354	342
20–40 . . .	287	297	306	309	304	310
40–60 . . .	112	116	128	134	149	155
Over 60 . . .	40	40	42	45	50	56
Total . .	1,000	1,000	1,000	1,000	1,000	1,000

The composition of the sections of the Union as to age and sex in 1880 was as follows :—

Age	New England			Middle States		
	Males	Females	Total	Males	Females	Total
0–15	156	154	310	181	179	360
15–60	288	309	597	281	292	573
Over 60	44	49	93	33	34	67
Total	488	512	1,000	495	505	1,000

Age	South			West		
	Males	Females	Total	Males	Females	Total
0–15	233	225	458	201	195	396
15–60	245	252	497	299	255	554
Over 60	23	22	45	27	23	50
Total	501	499	1,000	527	473	1,000

The highest ratio for able-bodied men is in the West, and for women between 15 and 60 is in New England.

The great number of German, Irish, and Scandinavian settlers in the Western States explains the high ratio there of able-bodied men.

The composition of the population as regards sex and age was as follows :—

Age	1800			1810			1820		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
0–16	260	242	502	257	242	499	249	240	489
16–45	192	188	380	191	189	380	196	193	389
Over 45	60	58	118	63	58	121	63	59	122
Total	512	488	1,000	511	489	1,000	508	492	1,000

After 1820 the classification according to age was altered by the Census officials : since 1830 the ratios show as follows :—

Age	1830			1840			1850		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
0–5	92	88	180	90	84	174	76	74	150
5–15	138	132	270	134	129	263	135	131	266
15–50	236	231	467	245	234	479	254	240	494
Over 50	42	41	83	42	42	84	46	44	90
Total	508	492	1,000	511	489	1,000	511	489	1,000

Age	1860			1870			1880		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
0–5	78	76	154	73	70	143	68	66	134
5–15	125	120	245	124	120	244	120	117	237
15–50	261	244	505	252	250	502	259	248	507
Over 50	50	46	96	58	53	111	63	59	122
Total	514	486	1,000	507	493	1,000	510	490	1,000

Men in the prime of life (15–50) held the highest ratio in 1860 ; women of child-bearing age (15–50) in 1870. It appears that the preponderance of males is due to immigration, the total number of settlers arrived in 42 years down to 1860 showing thus :—

		No.	Ratio
Males		2,951,000	594
Females		2,009,000	406
Total . .		4,960,000	1,000

As regards the coloured population, the sexes are almost even, viz. :—

	Number		Ratio	
Year	Males	Females	Males	Females
1830	1,166,000	1,162,000	501	499
1850	1,811,000	1,828,000	498	502

The white population, owing to immigration, had a much higher ratio of persons of working age than the coloured, as shown in the tables for 1850, viz. :—

Age	Per 1000 Whites			Per 1000 Coloured		
	Males	Females	Total	Males	Females	Total
0–15	208	201	409	223	223	446
15–50	258	242	500	234	235	469
Over 50	47	44	91	41	44	85
Total	513	487	1,000	498	502	1,000

AGRICULTURE

This is the most important industry of mankind, for (without counting India, China, &c.) it occupies 80,000,000 peasants, represents a capital of 23,000 millions sterling, and has annual products to the value of almost 4000 millions. Capital and product have more than doubled since 1840, but the number of hands engaged has not risen 50 per cent., viz. :—

Year	Millions, £ Sterling		Agricultural Peasants
	Capital	Product	
1840 . . .	9,036	1,824	55,080,000
18.0 . . .	14,923	2,483	66,000,000
1887 . . .	23,006	3,948	80,050,000

The following tables show approximately how agricultural capital was made up at the above dates :—

Year 1840. Value in Millions, £ Sterling				
	Land	Cattle	Sundries	Total
Europe	6,471	875	820	8,166
United States . .	400	96	100	596
Colonies, &c. . .	224	23	27	274
Total . . .	7,095	994	947	9,036

Year 1860. Value in Millions, £ Sterling				
	Land	Cattle	Sundries	Total
Europe	9,957	1,260	1,227	12,444
United States . .	1,382	226	237	1,845
Colonies, &c. . .	523	76	35	634
Total . . .	11,862	1,562	1,499	14,923

Year 1887. Value in Millions, £ Sterling				
	Land	Cattle	Sundries	Total
Europe	13,776	1,940	1,737	17,453
United States . .	2,560	501	635	3,696
Colonies, &c. . .	1,410	260	157	1,857
Total . . .	17,776	2,701	2,529	23,006

The agricultural capital of Europe has doubled since 1840; that of the United States has increased sixfold. The average increase has been 197 millions sterling per annum in Europe, and 67 millions in the United States.

The value of agricultural products at the above periods was approximately as follows :—

Millions, £ Sterling				
Year	Grain	Other Crops	Pastoral Products	Total
1840	702	538	584	1,824
1860	1,130	575	778	2,483
1887	1,091	1,445	1,412	3,948

The value of grain crops has diminished since 1860, while that of pastoral products has nearly doubled, the price of grain having declined very notably, while that of meat, as also of dairy products, has risen. The relative importance of the three great branches of agricultural industry at the said dates is shown as follows, judged by money values :—

	1840	1860	1887
Grain	38.5	45.5	27.5
Other crops	29.8	23.2	36.8
Pastoral produce . .	31.7	31.3	35.7
Total	100.0	100.0	100.0

TILLAGE

The area under crops has risen from 492 million acres in 1840 to 807 millions in 1888, an increase of 315 millions, viz. :—

In Europe	.	.	131 million acres.
,, United States	.	.	151 ,, ,,
,, Colonies, &c.	.	.	33 ,, ,,
Total	.	.	315 ,, ,,

In 48 years the area of tillage and planting has risen 65 per cent., but the grain crops have risen 120 per cent., viz. :—

Millions of Bushels			
Year	Europe	U. States	Colonies	Total
1840	3,212	616	291	4,119
1860	4,046	1,240	464	5,750
1887	5,588	2,586	948	9,122

Improved implements and machinery have made tillage more productive and grain cheaper. In 1840 each peasant produced about 73 bushels of grain; in 1860 the average was 87, and in 1887 it had risen to 114; that is, two men now produce more grain than three did in 1840. The following table shows the distribution of grain-growing in 1887 :—

	Millions of Acres					Crops, Millions of Bushels				
	Wheat	Oats	Barley	Various	Total	Wheat	Oats	Barley	Various	Total
Europe	90	72	38	148	348	1,336	1,628	694	1,930	5,588
United States . . .	38	26	3	75	142	442	640	58	1,446	2,586
Colonies, &c. . . .	46	3	7	13	69	465	97	82	304	948
Total . . .	174	101	48	236	559	2,243	2,365	834	3,680	9,122

In the United States 9,000,000 hands raise nearly half as much grain as 66 millions in Europe. Thus it appears that for want of implements or proper machinery there is a waste of labour in Europe equal to 48 millions of peasants. In other words, one farm labourer in the United States is worth more than three in Europe.

PLATE I. 6

AGRICULTURE.

Value of all agricultural products, in millions £ sterling.

U. States 776 — Russia 563 — France 460 — Germany 424 — Austria 331 — U. Kingdom 251 — Italy 204 — Spain 173 — Australia 85 — Canada 26
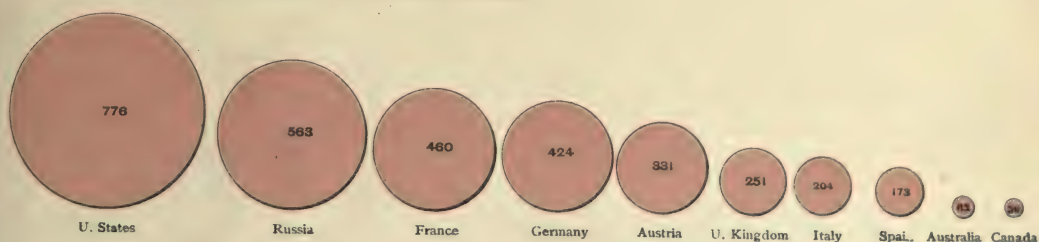
Pounds of grain produced per inhabitant.

U. States 2220 — Denmark 2005 — Canada 1500 — Russia 1200 — Roumania 1150 — Spain 1100 — France 990 — Sweden 985

Austria 980 — Argentina 850 — Algeria 840 — Australia 760 — Germany 700 — Belgium 600 — Portugal 550 — Holland 510 — Ireland 500 — Scotland 490 — Italy 400 — England 360

Acres under grain per 100 inhabitants

U. States 222 — Russia 190 — Argentina 160 — Denmark 150 — Roumania 148 — Canada 130 — Australia 125 — Spain 102

Greece 100 — Austria 100 — France 97 — Sweden 80 — Germany 74 — Italy 70 — Portugal 50 — Belgium 41 — Holland 33 — Switzerland 30 — U. Kingdom 28
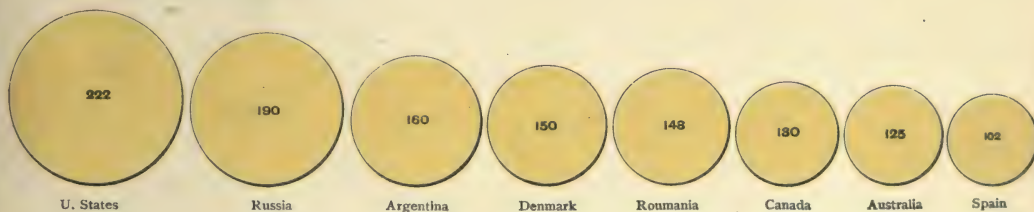
PASTORAL INDUSTRY.

The production of meat at the same periods was approximately as follows :—

Year	Tons			
	Europe	United States	Colonies, &c.	Total
1840	6,800,000	2,120,000	200,000	9,120,000
1860	7,630,000	2,970,000	400,000	11,000,000
1887	8,633,000	4,750,000	920,000	14,303,000

The production of meat has risen 57 per cent. since 1840, while that of grain, as we have already seen, has increased 120 per cent. In aliquot parts production of meat showed thus :—

	1840	1860	1887
Europe	74.5	69.3	60.4
United States . . .	23.3	27.0	33.2
Colonies, &c. . . .	2.2	3.7	6.4
Total	100.0	100.0	100.0

See *Cattle* and *Food*.

AGRICULTURAL AREA

The area under crops in the various countries was approximately as follows :—

	Millions of Acres				
	1820	1840	1860	1880	1888
U. Kingdom . . .	19	22	22	23	21
France	48	55	57	60	61
Germany	37	45	50	58	59
Russia	120	135	145	183	190
Austria	50	53	58	60	65
Italy	20	22	26	35	35
Spain	25	30	30	32	32
Portugal	3	4	5	5	5
Sweden	2	5	8	12	12
Norway	1	3	4	4	4
Denmark	2	5	6	8	8
Holland	4	4	5	5	5
Belgium	3	4	5	5	5
Other countries . .	30	40	50	56	56
Europe	364	427	471	546	558
U. States	30	50	90	166	201
Canada	2	4	8	10	13
Australia	1	2	3	10	14
Argentina	...	...	1	3	6
Brazil	...	1	1	2	2
Algeria	4	5	6	7	8
Egypt	2	4	4	5	5
Total . .	402	492	583	749	807

The area has doubled since 1820, the increase during the various periods having been as follows :—

Period	Millions of Acres	Acres per Annum
1820–40	90	4,500,000
1841–60	91	4,550,000
1861–80	166	8,300,000
1881–88	58	7,200,000

It is especially since 1860 that improvements in agricultural machinery have been attended with a notable extension of cultivated area.

AGRICULTURAL POPULATION

Hands engaged in tillage and pastoral industries were approximately as follows :—

	1840	1860	1887
Europe . . .	50,430,000	58,160,000	66,320,000
United States .	2,550,000	4,340,000	9,000,000
Colonies, &c. .	2,100,000	3,500,000	4,730,000
Total . .	55,080,000	66,000,000	80,050,000

The ratios of capital and products that corresponded to the agricultural population, that is, to each adult peasant, were :—

	Capital		Product	
	1840	1887	1840	1887
	£	£	£	£
Europe	162	263	31	43
United States . .	235	410	72	85
Colonies, &c. . . .	134	390	46	61
General average . .	164	287	33	50

Each hand in the United States produces double the annual value that prevails in Europe.

CROPS

The production of grain (excluding rice) was approximately as follows :—

	Millions of Bushels				Bushels per Inhabitant		
	1831-40	1851-60	1874-84	1887	1831-40	1851-60	1887
U. Kingdom .	408	390	334	311	16	15	8
France . . .	510	550	687	729	15	15	19
Germany . .	290	450	685	706	10	13	15
Russia . . .	1,040	1,270	1,461	1,854	20	20	20
Austria . . .	364	500	578	687	13	16	17
Italy	110	200	277	225	6	10	7
Spain	180	215	326	300	15	14	18
Portugal . . .	25	30	19	40	8	8	9
Sweden . . .	14	35	93	104	5	10	23
Finland . . .	10	15	22	20	10	10	10
Norway . . .	6	15	17	17	6	10	9
Denmark . .	40	65	78	84	36	43	42
Holland . . .	16	20	37	40	6	6	9
Belgium . . .	33	70	66	75	9	15	14
Switzerland . .	12	15	17	18	6	6	6
Greece . . .	6	9	11	18	6	7	10
Servia . . .	8	11	14	20	10	10	10
Roumania . .	70	90	109	120	22	23	24
Turkey, &c. .	170	196	209	220	12	14	15
Europe . . .	3,312	4,146	5,040	5,588	14	15	16
United States .	540	1,053	2,325	2,586	36	38	42
Canada . . .	22	45	128	148	14	15	30
Chili	5	12	18	18	5	8	8
Argentina . .	2	5	25	50	2	3	13
Australia . .	1	10	36	51	3	10	15
Other countries	260	390	587	681	...	...	...
Total . .	4,042	5,661	8,159	9,122	...	...	...

The production of grain per inhabitant in Europe is higher now than fifty years ago.

The production of wheat was approximately as follows:—

	Millions of Bushels				
	1831-40	1851-60	1871-80	1881-87	1888
United Kingdom . .	120	121	85	78	76
France	190	223	275	290	275
Germany	50	70	94	98	103
Russia	110	130	224	250	258
Austria	65	85	109	151	138
Italy	60	75	115	105	141
Spain	58	70	114	133	170
Portugal	4	5	8	10	10
Sweden and Norway .	1	2	4	4	6
Denmark	3	4	5	6	5
Holland	3	4	5	6	6
Belgium	8	13	16	17	16
Switzerland . . .	1	1	2	2	2
Greece	2	2	3	4	6
Servia	2	2	3	4	4
Roumania . . .	15	20	24	26	30
Turkey, &c . . .	20	30	40	47	50
Europe	712	857	1,126	1,231	1,296
United States . . .	78	137	338	440	415
Canada	6	9	24	36	37
Australia	2	8	24	38	45
India, &c.	108	187	282	375	478
Total . . .	906	1,198	1,794	2,120	2,271

Mr. Spallart's estimate of the crops of the world down to 1884 compares with the official returns and latest estimates for 1887 as follows:—

	Millions of Bushels Yearly						
	Wheat	Rye	Barley	Oats	Maize	Sundry	Total
1871-80	1,944	1,256	774	1,870	1,528	312	7,684
1875-84	1,962	1,165	788	1,936	1,829	293	7,973
1883-84	2,115	1,196	803	2,189	2,035	324	8,662
1887	2,243	1,418	834	2,365	1,979	283	9,122

Newmann Spallart's statement of the ordinary production of grain (1874-84) is as follows:—

	Millions of Bushels						
	Wheat	Rye	Barley	Oats	Maize	Sundries	Total
U. Kingdom	88	2	82	162	...	...	334
France . .	277	70	50	220	26	44	687
Germany . .	102	220	95	260	...	8	685
Russia . .	176	556	113	446	17	130	1,438
Poland . .	15	47	25	36	...	...	123
Austria . .	120	110	84	138	104	22	578
Italy . .	140	9	9	18	85	16	277
Spain . .	168	32	77	13	36	...	326
Portugal . .	9	7	2	1	...	...	19
Sweden . .	3	19	15	50	...	6	93
Norway . .	...	1	5	9	...	2	17
Denmark . .	5	16	26	30	...	1	78
Holland . .	6	9	5	11	...	6	37
Belgium . .	20	16	4	24	...	2	66
Finland . .	...	10	5	7	...	...	22
Switzerland .	2	8	2	5	...	...	17
Greece . .	4	...	2	...	3	2	11
Servia . .	4	1	3	1	5	...	14
Roumania . .	26	3	14	3	61	2	109
Bosnia . .	2	...	2	1	3	...	8
Bulgaria . .	23	1	11	2	7	...	44
Eur. Turkey .	22	13	12	2	8	...	57
Europe . .	1,212	1,150	643	1,439	355	241	5,040
United States	400	23	42	420	1,430	10	2,325
Canada . .	30	2	17	66	9	4	128
Chile . . .	13	...	4	...	1	...	18
Argentina .	10	...	1	...	14	...	25
Australia . .	20	...	2	9	5	...	36
Japan . .	11	...	50	...	...	33	94
India . . .	250	...	...	...	...	...	250
Egypt . .	18	...	7	...	12	...	37
Algeria . .	10	...	34	2	...	2	48
Asia Minor, &c.	86	...	...	...	60	...	146
Cape Colony	8	...	...	...	4	...	12
*Total .	2,068	1,175	800	1,936	1,890	290	8,159

* The figures for the Argentine Republic, Asia Minor, and Cape Colony are not Mr. Spallart's.

The acreage of grain-crops (not including rice) in 1887-88 was as follows:—

	Acres					Acres per 100 Inhabitants
	Wheat	Oats	Barley	Other Grain	Total	
United Kingdom .	2,670,000	4,180,000	2,260,000	680,000	9,790,000	28
France .	17,180,000	9,230,000	2,340,000	7,850,000	36,600,000	97
Germany	4,740,000	9,410,000	4,280,000	15,870,000	34,300,000	74
Russia .	28,950,000	34,890,000	12,450,000	83,510,000	159,800,000	190
Poland .	1,500,000	3,000,000	1,000,000	5,600,000	11,100,000	140
Finland .	10,000	300,000	300,000	710,000	1,320,000	66
Austria .	9,760,000	7,190,000	5,240,000	15,360,000	37,550,000	100
Italy .	11,700,000	1,100,000	860,000	6,690,000	20,350,000	70
Spain .	8,000,000	1,000,000	4,000,000	5,000,000	18,000,000	102
Portugal .	600,000	100,000	200,000	1,300,000	2,200,000	50
Sweden	200,000	2,000,000	600,000	1,060,000	3,860,000	80
Norway .	10,000	220,000	140,000	100,000	470,000	25
Denmark .	140,000	990,000	...,000	1,010,000	2,920,000	150
Holland .	210,000	28...,000	...,000	850,000	1,460,000	33
Belgium .	680,000	62...,000	...,000	990,000	2,390,000	41
Switzerland .	150,000	200,000	130,000	420,000	900,000	30
Greece .	900,000	...	400,000	700,000	2,000,000	100
Roumania, Turkey, &c.	6,900,000	...	3,600,000	10,760,000	21,260,000	140
Europe .	94,300,000	74,710,000	38,800,000	158,460,000	366,270,000	110
United States .	37,640,000	25,920,000	2,650,000	75,430,000	141,640,000	222
Colonies, &c. .	45,240,000	3,460,000	5,650,000	7,840,000	62,190,000	...
Total . . .	177,180,000	104,090,000	47,100,000	241,730,000	570,100,000	...

The crops in 1887-88 were approximately as follows (not counting rice):—

| | Millions of Bushels | | | | | | Bushels | |
	Wheat	Oats	Barley	Maize	Rye, &c.	Total	Per Acre	Per Inhab.
U. Kingdom	76	151	70	...	14	311	32	8
France . .	295	246	49	26	113	729	20	19
Germany . .	104	243	97	...	262	706	21	15
Russia . .	269	600	162	13	810	1,854	11	22
Poland . .	15	36	20	...	52	123	11	15
Finland . .	...	7	5	...	11	23	17	12
Austria . .	185	169	106	90	137	687	18	18
Italy . .	110	14	9	75	17	225	11	8
Spain . .	136	20	74	40	30	300	16	18
Portugal . .	10	1	2	15	12	40	15	9
Sweden . .	4	55	15	...	30	104	27	22
Norway . .	...	9	4	...	4	17	35	9
Denmark . .	6	30	22	...	26	84	28	42
Holland . .	6	13	5	...	16	40	14	9
Belgium . .	17	28	4	...	26	75	31	13
Switzerland .	2	5	2	...	8	17	20	6
Greece . .	8	...	3	4	1	16	8	8
Roumania .	25	...	14	64	9	112	15	22
Servia . .	4	1	3	5	3	16	14	8
Bulgaria . .	32	...	16	11	4	63	11	20
Turkey . .	32	...	12	20	16	80	11	20
Europe . .	1,336	1,628	694	363	1,601	5,622	15	17
United States	442	640	58	1,412	34	2,586	18	40
Canada . .	36	80	22	10	...	148	22	30
Australia . .	25	15	3	8	...	51	11	15
India . .	250	...	...	...	...	250	9	1
Egypt . .	18	...	7	12	36	73	16	12
Algeria . .	23	2	40	1	...	66	10	16
Japan . .	65	...	...	13	22	100	17	3
Mexico . .	10	...	6	130	8	154	...	15
Argentina .	22	...	2	26	...	50	11	16
Chili . .	16	...	2	4	...	22	10	8
Total .	2,243	2,365	834	1,979	1,701	9,122	...	...

The cultivation of wheat and barley requires as follows:—

| At | Days of Cultivation | | Mean Temperature, Fahr. | |
	Wheat	Barley	Wheat	Barley
Alsace	131	122	60	57
Kingston, Canada .	106	92	68	66
Cincinnati	137	...	60	...

According to Broch (1885), the average product per acre of different kinds of grain, taken from five years' results in the various countries, was as follows:—

| | Bushels | | | | | |
	Wheat	Rye	Barley	Oats	Maize	Potatoes
U. Kingdom	35	33	38	33	...	...
France . .	16	16	20	25	...	...
Germany . .	19	16	24	27	..	130
Russia . .	9	11	9	18	...	...
Austria . .	16	14	17	20	...	130
Hungary . .	12	...	16	18	17	107
Italy . . .	12	...	15	20	21	164
Sweden . .	20	20	34	34	....	'121
Norway . .	25	27	31	39	....	127
Denmark .	25	25	27	30	....	95
Holland . .	23	18	37	42	....	177
Belgium . .	24	22	35	40	....	164
U. States .	12	13	22	26	24	76
Australia . .	10	...	21	28	33	141

He estimates the crops in Europe as follows:—

| | Millions of Bushels | | |
	Crop	Deduct Seed	For Consumption
Wheat	1,236	176	1,060
Rye	1,230	175	1,055
Barley	630	90	540
Oats	1,528	218	1,310
Maize	210	30	180
Total . . .	4,834	689	4,145

He says that 2227 million bushels are used for human food, and 1918 for cattle, alcohol, &c. ; the average consumption of grain per head of population in Europe being 410 lbs., or almost 7 bushels, yearly. His estimates, however, appear altogether too low, being 100 million bushels short in wheat, and the same in oats, while his crop of maize is but little over half the reality. It is to be observed in his favour that the crops are now heavier than when he wrote, in 1885.

The production and consumption of grain in the various countries are approximately as follows:—

| | Production Million Bushels | Consumption, Millions of Bushels | | | | |
		Food	Sowing	Liquor	Cattle, &c.	Total
U. Kingdom .	311	240	31	45	286	602
France . . .	729	330	100	15	338	783
Germany . .	706	430	100	50	200	780
Russia . . .	1,854	920	280	52	388	1,640
Austria . . .	687	320	100	20	230	670
Italy	225	200	30	4	26	260
Spain	300	140	40	2	123	305
Portugal . .	40	32	6	1	6	45
Sweden . .	104	44	21	6	39	110
Norway . .	17	16	4	3	7	30
Denmark . .	84	20	10	3	41	74
Holland . .	40	40	3	6	14	63
Belgium . .	75	60	9	10	28	107
Switzerland . .	20	24	3	2	6	35
Greece . .	20	20	3	1	3	27
Servia . . .	15	10	2	1	2	15
Roumania . .	120	30	18	2	10	60
Turkey, &c. .	275	86	30	2	127	245
Europe . . .	5,622	2,962	790	225	1,874	5,851
United States .	2,586	360	400	50	1,590	2,400
Canada . . .	148	32	25	5	56	118
Australia . .	51	24	10	3	3	40
Argentina . .	50	15	10	...	...	25
India	250	183	40	...	...	223
Other countries	415	271	40	...	154	465
Total . .	9,122	3,847	1,315	283	3,677	9,122

The average yield of crops per 100 lbs. of seed is approximately as follows:—

	Wheat	Oats	Barley	Rye
France	800	750	800	700
Germany	780	700	900	600
Russia	600	750	700	600
Denmark	900	800	800	800
Sweden	600	400	400	500
Holland	1,400	1,400	1,400	1,400
Belgium	1,200	880	1,310	1,210

The following is a summary of the crops and value since 1874 :—

	Million of Bushels, per Annum			Value, Millions £	
	1874 84	1884	1887	1874-84	1887
Wheat	2,068	2,348	2,243	543	412
Rye	1,175	1,226	1,418	235	227
Barley	800	795	834	153	108
Oats	1,936	2,152	2,365	202	185
Maize	1,890	2,148	1,979	204	186
Sundry	290	289	283	30	25
Total . . .	8,159	8,958	9,122	1,367	1,143

The values of these crops in 1887 were thus made up :—

	Millions, £ Sterling					
	Wheat	Oats	Barley	Maize	Rye, &c.	Total
Europe . . .	261	142	89	36	236	764
United States .	71	36	7	124	5	243
India and Japan	52	...	...	...	...	52
Colonies, &c. .	28	7	12	26	11	84
Total . .	412	185	108	186	252	1,143

(Deducting India and Japan, the value will be 1091 millions, as in the table of nations at p. 11.)

If the average prices of 1874-84 had been maintained, mankind would have had to pay 1577 millions sterling for the crops of 1887, a sum nearly 40 per cent. in excess of the above value. The following table shows the countries (1886-87) that had surplus grain to export, and those that imported to cover deficits :—

Exporters	Bushels	Importers	Bushels
Russia .	215,000,000	United Kingdom .	286,000,000
Austria .	13,000,000	France	54,000,000
Roumania	56,000,000	Germany. . . .	72,000,000
U. States	168,000,000	Scandinavia . . .	18,000,000
Argentina	24,000,000	Holland & Belgium	55,000,000
India . .	27,000,000	Switzerland . . .	15,000,000
Australia .	12,000,000	Spain and Portugal	11,000,000
Canada .	30,000,000	Italy	36,000,000
Total .	545,000,000	Total	547,000,000

Mr. Spallart sums up the value of all grain crops in 1884 thus :—

	Millions, £ Sterling						
	Wheat	Rye	Barley	Oats	Maize	Sundries	Total
United States .	69.5	3.2	6.3	34.0	134.6	1.4	249.0
Russia	35.2	75.0	11.5	28.9	1.3	5.7	157.6
France	69.0	13.3	9.1	31.6	5.8	7.9	136.7
Germany . . .	23.7	38.2	15.4	27.5	...	0.9	105.7
Italy	35.1	1.5	1.5	1.7	16.0	11.0	66.8
Austria proper .	5.3	7.5	4.4	6 2	1.5	0.8	25.7
Hungary . . .	10.9	3.6	3.6	2.4	8.5	...	29.0
Spain	53.8	7.5	18.2	1.8	9.0	0.9	91.2
Denmark . . .	0.9	2.7	3.3	3.4	...	0.1	10.4
Holland . . .	1.4	1.8	0.7	1.2	...	0.5	5.6
Other countries .	135.7	11.7	33.6	29.8	11.3	4.8	226.9*
Total . .	440.5	166.0	107.6	168.5	188.0	34.0	1104.6

* He only gives the total for " Other countries ;" the distribution is mine.

According to Mr. Spallart the average values of grain in 1878-81 throughout the world were as in the following table, and if these prices were applied to the average crops for ten years ending 1884, the results would be as follows :—

	Price, Pence per Bushel	Crop, Million Bushels	Value, Million £
Wheat	63	2,068	543
Rye	48	1,175	235
Barley	46	800	153
Oats	25	1,936	202
Maize	26	1,890	204
Sundry	25	290	30
Total . .		8,159	1,367

As near as we can ascertain, the crops and aggregate value were :—

Period	Million Bushels	Value, Millions £	Average Price, Pence per Bushel
1831-40	4,043	624	37
1851-60	5,563	1,130	48
1874-84	8,159	1,367	40
1887	9,122	1,143	30

The value of agricultural and pastoral products in 1887 is shown approximately as follows :—

	Millions, £ Sterling			Per Agricultural Labourer
	Agricultural	Pastoral	Total	£
U. Kingdom .	141	110	251	98
France . . .	322	138	460	71
Germany . .	262	162	424	52
Russia . . .	373	190	563	25
Poland . . .	34	21	55	34
Finland . . .	9	6	15	37
Austria . . .	225	106	331	31
Italy	153	51	204	37
Spain . . .	126	47	173	63*
Portugal . .	23	8	31	35
Sweden . . .	31	18	49	58
Norway . . .	9	8	17	48
Denmark . .	20	15	35	85
Holland . .	20	19	39	46
Belgium . .	41	14	55	56
Switzerland .	9	10	19	43
Roumania . .	27	20	47	60
Servia . . .	6	8	14	47
Greece . . .	14	5	19	60
Bulgaria . .	14	5	19	40
Turkey . . .	16	9	25	45
Europe . . .	1,875	970	2,845	43
United States	467	309	776	85
Canada . .	35	21	56	70
Mexico . . .	25	8	33	...
Australia . .	27	35	62	98
Cape Colony .	2	6	8	40
Argentina . .	18	24	42	70
Uruguay . .	2	8	10	100
Chili	9	6	15	50
Brazil . . .	32	8	40	20
Algeria . . .	14	12	26	35
Egypt . . .	30	5	35	45
Total . .	2,536	1,412	3,948	50

* This is the ratio corresponding to the number of hands returned in the Census of 1871 ; the real number of hands is probably 4,000,000, which would give an average product of £43 per head.

The value of the principal items in 1887 was approximately as follows:—

	Grain	Green Crops	Garden Products	Dairy	Wine	Meat	Sundries	Total
	Millions, £ Sterling							
U. Kingdom	41	86	10	31	...	55	28	251
France	129	103	30	47	49	60	42	460
Germany	93	117	30	55	5	69	55	424
Russia	181	110	32	48	4	63	125	563
Poland	19	7	3	5	...	5	16	55
Finland	4	2	1	1	...	3	4	15
Austria	102	61	22	35	17	44	50	331
Italy	40	37	23	14	43	18	29	204
Spain	55	15	9	9	44	26	15	173
Portugal	7	3	2	2	10	5	2	31
Sweden	14	7	2	7	...	7	12	49
Norway	2	2	1	3	...	3	6	17
Denmark	13	6	1	6	...	6	3	35
Holland	6	11	3	10	...	6	3	39
Belgium	12	24	5	5	...	6	3	55
Switzerland	3	3	2	5	1	4	1	19
Greece	3	2	4	1	3	3	3	19
Roumania	17	7	3	5	3	11	1	47
Servia	3	1	1	2	1	4	2	14
Bulgaria	9	1	1	3	...	4	1	19
Turkey	11	2	1	3	1	5	2	25
Europe	764	607	186	297	181	407	403	2,845
United States	243	165	57	79	2	156	74	776
Canada	15	10	3	8	...	8	12	56
Mexico	20	4	1	2	...	4	2	33
Australia	9	15	3	4	...	9	22	62
Argentina	8	7	2	4	1	6	14	42
Uruguay	1	1	1	1	...	3	3	10
Cape Colony	2	...	1	1	...	2	2	8
Algeria	11	1	1	1	2	6	4	26
Egypt	13	17	...	1	...	2	2	35
Brazil	1	30	2	1	...	2	4	40
Chile	4	2	2	2	1	3	1	15
Total	1,091	859	259	401	187	603	543	3,948

The following table shows approximately the agricultural capital in 1888:—

	Land	Cattle	Sundries	Total	£ per Inhab.
	Millions, £ Sterling				
U. Kingdom	1,873	185	229	2,287	60
France	2,688	218	323	3,229	84
Germany	1,815	262	230	2,307	50
Russia	1,305	576	209	2,090	25
Poland	150	30	20	200	25
Finland	52	11	7	70	35
Austria	706	106	90	902	38
Hungary	651	96	83	830	52
Bosnia	14	9	2	25	18
Italy	1,182	83	140	1,405	47
Spain	984	95	120	1,199	66
Portugal	132	13	16	161	36
Sweden	240	36	30	306	62
Norway	100	15	12	127	63
Denmark	217	30	27	274	137
Holland	314	28	38	380	85
Belgium	377	24	44	445	74
Switzerland	120	10	14	144	48
Greece	138	24	18	180	90
Roumania	254	37	32	323	64
Servia	94	16	12	122	61
Bulgaria	90	10	10	110	33
Turkey	280	26	31	337	67
Europe	13,776	1,940	1,737	17,453	48
United States	2,560	501	635	3,696	57
Canada	282	44	36	362	72
Mexico	103	15	13	131	13
Chile	50	8	6	64	21
Argentina	111	49	17	177	44
Uruguay	34	14	5	53	80
Brazil	105	7	12	124	10
Cape Colony	25	13	4	42	40
Australia	533	67	37	637	160
Algeria	87	28	13	128	32
Egypt	110	15	14	139	20
Total	17,776	2,701	2,529	23,006	50

The following table shows approximately the principal features of agricultural industry in 1840 and 1887:—

	Capital, Million £		Product, Million £		Hands		Production per Hand	
	1840	1887	1840	1887	1840	1887	1840	1887
							£	£
United Kingdom	1,968	2,287	218	251	3,400,000	2,560,000	65	97
France	1,743	3,229	269	460	6,950,000	6,450,000	39	71
Germany	630	2,307	170	424	6,400,000	8,120,000	27	52
Russia	517	2,090	248	563	15,000,000	22,700,000	16	25
Austria	702	1,732	205	331	7,500,000	10,680,000	27	31
Italy	452	1,405	114	204	3,600,000	5,390,000	32	37
Spain	724	1,199	102	173	2,000,000	2,720,000	50	63
Portugal	100	161	18	31	700,000	870,000	26	35
Sweden	51	306	16	49	550,000	850,000	30	58
Norway	30	127	8	17	250,000	380,000	32	48
Denmark	46	274	16	35	280,000	420,000	56	85
Holland	245	380	20	39	600,000	840,000	33	46
Belgium	235	445	30	55	900,000	980,000	33	56
Switzerland	100	144	12	19	300,000	440,000	40	43
Turkey, &c.	623	1,367	98	194	2,000,000	2,900,000	40	58
Europe	8,166	17,453	1,544	2,845	50,430,000	66,320,000	31	43
United States	596	3,696	184	776	2,550,000	9,000,000	72	85
Canada	80	362	12	56	300,000	800,000	40	70
Australia	18	637	6	62	100,000	630,000	60	98
Cape Colony	8	42	2	8	50,000	200,000	40	40
Argentina	22	177	5	42	200,000	600.000	25	70
Uruguay	6	53	1	10	50,000	100,000	20	100
Various	140	586	70	149	140,000	2,400,000	50	62
Total	9,036	23,006	1,824	3,948	53,820,000	80,050,000	33	50

EUROPE

Area under crops was approximately as follows :—

Year	Million Acres	Year	Million Acres
1820	364	1860	471
1840	427	1888	558

The production of grain, wine, potatoes, and meat may be set down thus—

Year	Grain, Million Bushels	Wine, Million Gallons	Potatoes, Million Tons	Meat, Tons
1820	2.800	2,050	20	5,400,000
1840	3.300	2,150	40	6,800,000
1860	4,200	2.300	50	7,600,000
1880	5,040	2.500	60	8,300,000
1887	5,600	2,600	70	8,630,000

The ratio of the above products to population was as follows :—

Year	Per Inhabitant			
	Grain, Bushels	Wine, Gallons	Potatoes, lbs.	Meat, lbs.
1820	14	10	224	60
1840	14	9	370	64
1860	15	8	400	61
1880	15	8	430	56
1887	15	8	445	57

The following table shows the rank that European products hold in those of the world, as regards value (1888) :—

	Millions, £ Sterling			
	Europe	United States	Colonies, &c.	Total
Grain	764	243	84	1,091
Green crops . .	607	165	87	859
Garden crops. .	186	57	18	261
Wine	181	2	4	187
Dairy	297	79	25	401
Meat	407	156	45	608
Sundries . . .	403	74	64	541
Total . . .	2.845	776	327	3,948

	Grain	Green Crops	Garden Crops	Wine	Dairy	Meat	Sundries	Total
Europe . .	70.0	70.5	71.2	96.8	74.0	67.0	74.5	72.1
United States	22.3	19.2	21.9	1.1	19.8	25.6	13.7	19.6
Colonies, &c.	7.7	10.3	6.9	2.1	6.2	7.4	11.8	8.3
Total. .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

It appears from the foregoing general summary that Europe stands for nearly three-fourths of the value of all the farm products of the world.

The weight and value of European grain crops in 1887–88 were approximately as follows :—

	Weight in Tons					Lbs. per Inhabitant
	Wheat	Oats	Barley	Rye, &c.	Total	
United Kingdom . .	2,100,000	2.510,000	1,600,000	350,000	6,560,000	400
France	8,200,000	4,200,000	1,200,000	3,300,000	16,900,000	990
Germany	2,800,000	4,300,000	2,200,000	5,800,000	15,100,000	700
Russia	7,500,000	10,400,000	3,800,000	22,600,000	44,300,000	1,200
Poland	400,000	600,000	300,000	1,500,000	2,800,000	800
Austria	5,100,000	2,830,000	2,600,000	6,570,000	17,100,000	980
Italy	3,000,000	340,000	170,000	1,790,000	5,300,000	400
Spain	3,700,000	350,000	1,700,000	1,950,000	7,700,000	1,000
Portugal	270,000	...	...	780,000	1,050.000	550
Sweden and Norway .	110,000	1,100,000	450,000	840.000	2,500,000	900
Denmark	140,000	560,000	520,000	600,000	1,820,000	900
Holland	140,000	250,000	100,000	410,000	900,000	510
Belgium	450,000	490,000	100,000	580,000	1,620,000	600
Roumania	700,000	...	330,000	1,820,000	2,850,000	1,150
Various	2,410,000	130,000	1,030,000	210,000	3,780,000	800
Europe	37,020,000	28,060,000	16,100,000	49,100,000	130,280,000	820

The following is a summary of products approximately in 1888 :—

	Tons	£	Sundries	£
Wheat	37,020,000	261.000,000	Vegetables	186,000,000
Oats	28,060,000	142,000,000	Wine	181,000,000
Barley	16,100,000	89,000,000	Timber	108,000,000
Rye, &c.	49,100,000	272,000,000	Dairy	297,000,000
All grain	130,280,000	764,000,000	Meat	404,000,000
Green crops . . .	...	607,000,000	Hides, wool, &c. . .	298,000,000
Principal crops . .	...	1,371,000,000	Sundries	1,474,000,000

Making a total of 2845 millions sterling. It is not pretended that the foregoing table of values is mathematically correct. It is the result of the investigations, and in some cases the official valuations, bearing upon each country, as given hereafter in detail. The value of the various grain-crops of Europe, taking the average for 1887–88, is shown approximately in the following table :—

| | Value, Millions £ Sterling | | | | | Shillings per Inhabitant |
	Wheat	Oats	Barley	Rye, &c.	Total	
U. Kingdom .	16	15	8	2	41	22
France . . .	71	29	7	22	129	65
Germany . . .	19	25	15	34	93	40
Russia . . .	37	35	15	94	181	45
Poland . . .	3	4	2	10	19	50
Austria . . .	37	14	16	35	102	52
Italy	20	2	1	17	40	27
Spain	30	2	10	13	55	63
Portugal . . .	2	...	...	5	7	35
Sweden and Norway . . }	1	6	3	6	16	50
Denmark . .	1	4	3	5	13	130
Holland . . .	1	2	1	2	6	30
Belgium . . .	4	3	1	4	12	40
Roumania . .	5	...	2	10	17	70
Various . . .	14	1	5	13	33	50
Total . .	261	142	89	272	764	47

M. Block drew up, in 1850, a statement of the agricultural products of various countries, thus :—

| | Product Yearly, Tons | | Value, Millions £ | | | |
	Grain	Meat	Grain	Meat	Various	Total
U. Kingdom .	7,650,000	450,000	82	28	154	264
France . . .	12,600,000	605,000	123	22	211	356
Prussia . . .	12,200,000	310,000	27	8	102	137
Bavaria . . .	950,000	105,000	8	3	8	19
Saxony . . .	400,000	25,000	3	1	5	9
Austria . . .	10,200,000	740,000	67	19	88	174
Spain	2,100,000	220,000	21	10	57	88
Belgium . . .	1,300,000	52,000	9	3	9	21
Holland . . .	800,000	55,000	6	2	13	21
Sweden and Norway . }	1,100,000	130,000	4	2	7	13
Denmark . .	2,000,000	93,000	7	1	3	11
Total . .	51,300,000	2,785,000	357	99	647	1,113

The above table omitted Russia, Poland, Italy, Portugal, Switzerland, Roumania, Greece, and other countries. The values under the item "Various" were, moreover, too low.

The following table shows approximately the value of all agricultural products in Europe at different dates :—

| Year | Millions, £ Sterling | | |
	Agricultural	Pastoral	Total
1830	914	341	1,255
1840	1,114	430	1,544
1850	1,328	542	1,870
1860	1,444	620	2,064
1870	1,552	818	2,370
1888	1,875	970	2,845

The various classes of live-stock were approximately as follows :—

Year	Horses	Cattle	Sheep	Pigs	Value, Mill. £
1830	25,020,000	67,370,000	169,040,000	44,460,000	730
1850	28,950,000	80,120,000	183,950,000	38,430,000	1,018
1870	32,080,000	89,820,000	209,370,000	43,950,000	1,496
1887	37,610,000	101,855,000	197,740,000	48,350,000	1,940

The agricultural capital of Europe was made up as follows :—

| Year | Millions, £ Sterling | | | |
	Land	Cattle	Sundries	Total
1840 . . .	6,471	875	820	8,166
1860 . . .	9,957	1,260	1,227	12,444
1887 . . .	13,776	1,940	1,737	17,453

The increase of agricultural capital was as follows :—

Period	Millions, £	Millions, £ per Annum
1840–60	4,278	214
1860–87	5,009	185

Notwithstanding the fact that the agricultural capital of Europe has more than doubled since 1840, further increase promises to be very questionable, or at least very slow.

UNITED KINGDOM

In the 17th century agriculture was the principal occupation of the people, and made great progress after the expulsion of the Stuarts, but its golden epoch was the reign of George II. (1727–60). We have no reliable statistics till the present century, viz. :—

ACRES UNDER CROPS

Year	England	Scotland	Ireland	United Kingdom	Authority
1827	11,140,000	2,550,000	5,450,000	19,140,000	Porter
1846	13,300,000	3,390,000	5,240,000	21,930,000	M'Culloch
1866	13,340,000	3,170,000	5,250,000	21,760,000	Official
1876	13,920,000	3,510,000	5,210,000	22,640,000	,,
1888	13,350,000	3,690,000	4,145,000	21,185,000	,,

In the last sixty years the area under crops has increased by 2,200,000 in England and 1,140,000 in Scotland, but in Ireland it has diminished by 1,300,000 acres.

PRINCIPAL CROPS OF ENGLAND, ACREAGE

	1812, Comber	1820, Middleton	1831, M'Culloch	1846, M'Culloch
Wheat . .	3,160,000	3,300,000	3,800,000	3,800,000
Oats . . .	2,870,000	3,000,000	3,000,000	2,500,000
Barley, &c. .	860,000	900,000	900,000	1,500,000
Roots . .	1,250,000	1,200,000	} 2,650,000	2,700,000
Clover . .	1,150,000	1,200,000		1,300,000
Fallow . .	2,310,000	2,400,000	1,650,000	1,500,000
Total .	11,600,000	12,000,000	12,000,000	13,300,000

In recent years there has been a marked decline in the area under grain, viz. :—

ACREAGE, UNITED KINGDOM

	1871–75	1881–85	1888
Wheat . . .	3,740,000	2,830,000	2,670,000
Oats	4,230,000	4,300,000	4,180,000
Barley, &c. . .	3,570,000	3,210,000	2,940,000
Potatoes . . .	1,510,000	1,380,000	1,410,000
Turnips, &c. .	3,564,000	3,367,000	3,356,000
Flax	136,000	115,000	116,000
Hops	64,000	68,000	58,000
Clover and grass	29,530,000	31,710,000	32,680,000
Fallow . . .	640,000	760,000	470,000
Total . .	46,984,000	47,740,000	47,880,000

According to M'Culloch, the tillage of the United Kingdom in 1851 stood thus :—

| | Grain | | Other Crops, Acres | Total Acres | Value of Crops |
	Acres	Mill. Bush.			
					£
England	7,200,000	200	5,500,000	12,700,000	80,500,000
Scotland	1,480,000	46	1,110,000	2,590,000	14,900,000
Ireland .	2,920,000	89	1,880,000	4,800,000	26,400,000
United Kingdom }	11,600,000	335	8,490,000	20,090,000	121,800,000

The average value of crops to the acre in 1851 was 110 shillings in Ireland, 114 in Scotland, 127 in England. At present the gross product of the United Kingdom averages 110 shillings per acre.

The distribution of crops in the three kingdoms in 1888 was thus :—

ACREAGE

	England	Scotland	Ireland	United Kingdom
Wheat . .	2,510,000	70,000	90,000	2,670,000
Oats . . .	1,885,000	1,015,000	1,280,000	4,180,000
Barley, &c. .	2,485,000	255,000	200,000	2,940,000
All grain	6,880,000	1,340,000	1,570,000	9,790,000
Potatoes .	445,000	160,000	805,000	1,410,000
Turnips . .	1,480,000	480,000	290,000	2,250,000
Vetches, &c.	905,000	20,000	145,000	1,070,000
All green crops . }	2,830,000	660,000	1,240,000	4,730,000
Gardens, &c. .	535,000	20,000	125,000	680,000
Clover, &c. .	3,105,000	1,670,000	1,205,000	5,980,000
Total crops	13,350,000	3,690,000	4,140,000	21,180,000
Pasture . .	14,590,000	1,190,000	10,920,000	26,700,000
Total . .	27,940,000	4,880,000	15,060,000	47,880,000

The yield per acre has much increased since the last century, when Arthur Young showed the wheat average for a number of years to be 23 bushels. The following estimates have been made :—

| | Yield per Acre, Bushels | | |
	Wheat	Oats	Barley
Comber, 1810-15 . . .	22	36	32
M'Culloch, 1840-46 . .	31	37	37
Caird, 1857-77 . . .	28	46	37

The production of grain in the United Kingdom compared with population is now less than half what it was in 1830, having steadily declined since then, viz.:—

| | Production, Millions of Bushels | | | Bushels per Inhabitant |
	Wheat	Oats, Barley, &c.	Total	
1830	104	304	408	17
1846	143	258	401	15
1866	98	290	388	14
1876	84	270	354	11
1887	76	235	301	8

The consumption has nevertheless risen in quantity 40 per cent., nearly one-half now being imported, viz. :—

Consumption of Grain, Millions of Bushels Yearly

Period	Home-Grown	Imported	Total	Ratio Imported
1831-40	408	8	416	2 per cent.
1841-50	400	31	431	7 ,,
1851-60	390	78	468	17 ,,
1861-70	388	126	514	24 ,,
1871-80	340	226	566	40 ,,
1881-89	320	272	592	45 .,

The production and consumption of wheat show as follows :—

Wheat, Millions of Bushels, Yearly Consumption

	Home-Grown	Imported	Total	Lbs. per Inhabitant	Ratio Imported
1811-30	97	4	101	300	4 per cent.
1831-50	113	14	127	280	11 ,,
1851-70	109	58	167	345	35 ,,
1871-80	90	116	206	370	57 ,,
1881-89	80	144	224	384	65 ,,

Consumption includes not only food, but also seed, say 8,000,000 bushels, or 12 lbs. per inhabitant.

The average yield of the principal crops in 1884-87 was as follows :—

| | Average Crops, 1884-87 | | |
	Great Britain	Ireland	United Kingdom
Wheat, bushels .	73,200,000	1,900,000	75,100,000
Barley, ,, .	72,500,000	5,800,000	78,300,000
Oats, ,, .	110,000,000	50,000,000	160,000,000
Beans, &c. ,, .	15,000,000	150,000	15,150,000
Potatoes, tons .	3,400,000	3,100,000	6,500,000
Turnips, ,, .	24,500,000	3,500,000	28,000,000
Mangold, ,, .	5,900,000	500,000	6,400,000
Hops, ,, .	30,000	...	30,000
Hay, ,, .	8,500,000	4,000,000	12,500,000

| | Yield per Acre, 1884-87 | | |
	Great Britain	Ireland	United Kingdom
Wheat, bushels . . .	30	28	30
Barley, ,, . . .	33	34	33
Oats, ,, . . .	37	38	37½
Beans, &c. ,, . . .	24	28	24
Potatoes, cwts. . . .	121	78	96
Turnips, ,, . . .	240	224	236
Hay, ,, . . .	26	34	29

Lawes and Gilbert's experiments of the yield of ground manured and unmanured showed as follows :—

BUSHELS PER ACRE

Period	Unmanured	Dung	Bone-Ash, &c.
1852-69	14.8	35.7	36.7
1870-79	10.2	29.5	31.7

The seed used for wheat-growing is usually 2½ bushels per acre, and the yield about eleven-fold for the United Kingdom.

According to Mr. Hermann Voss, the United Kingdom consumes annually 290,000 tons of mineral phosphates (93 per cent. imported) and 110,000 of bones (45 per cent. imported), in all, 400,000 tons, from which are pro- duced 800,000 tons of artificial manure, as compared with 200,000 tons in 1860.

The consumption of dung is 79 million tons (see *Manure*) per annum, that is, about 1¼ tons per acre.

The crops of 1889 were as follows:—

	England	Scotland	Ireland	United Kingdom	Acreage	Per Acre
Wheat, bushels	71,000,000	2,200,000	2,700,000	75,900,000	2,540,000	30
Oats, ,, ...	76,200,000	37,200,000	50,600,000	164,000,000	4,130,000	40
Barley, ,, ...	59,600,000	7,800,000	7,300,000	74,700,000	2,310,000	32
Beans, &c. ,, ...	14,500,000	500,000	200,000	15,200,000	540,000	28
Potatoes, tons	2,570,000	1,010,000	2,850,000	6,430,000	1,370,000	4 7
Turnips, ,, ...	20,300,000	7,800,000	3,900,000	32,000,000	2,220,000	14 4
Mangolds, ,, ...	6,100,000	...	600,000	6,700,000	370,000	18 ,
Hay, ,, ...	10,400,000	1,000,000	4,900,000	16,300,000	9,660,000	1.7

Ensilage or the use of "silos" is increasing, the returns for 1889 showing 2820 in the United Kingdom.

Statistics of live-stock are as follows:—

Year	Horses	Cattle	Sheep	Pigs	Authority
1688	...	...	12,000,000	...	King
1774	...	2,850,000	12,000,000	...	Campbell
1812	1,500,000	5,500,000	25,000,000	3,000,000	Colquhoun
1831	1,500,000	5,220,000	...	4,000,000	M'Culloch
1855	2,050,000	7,955,000	27,972,000	3,686,000	,,
1867	...	8,730,000	33,820,000	4,220,000	Official
1877	1,890,000	9,730,000	32,220,000	3,730,000	,,
1888	1,940,000	10,270,000	28,940,000	3,820,000	,,

The figures before 1812 are for England and Wales, the rest for the United Kingdom. Horses used in towns are not included above.

In 1855, according to M'Culloch, the live-stock stood thus:—

	England	Scotland	Ireland	United Kingdom
Horses . .	1,309,000	185,000	556,000	2,050,000
Cattle . .	3,420,000	975,000	3,560,000	7,955,000
Sheep . .	18,690,000	5,680,000	3,602,000	27,972,000
Pigs . . .	2,360,000	146,000	1,180,000	3,686,000

The returns of the three kingdoms for 1888 are as follows:—

	England	Scotland	Ireland	United Kingdom
Horses . .	1,240,000	190,000	510,000	1,940,000
Cattle . .	5,060,000	1,110,000	4,100,000	10,270,000
Sheep . .	18,580,000	6,730,000	3,630,000	28,940,000
Pigs . . .	2,265,000	155,000	1,400,000	3,820,000

The proportion of cattle in England to size of farms in 1885 was:—

NUMBER TO 100 ACRES

Acres	Horses	Cows	Sheep	Pigs	Total
Under 5	7	30	30	50	117
5-50	5	29	33	17	89
50-100	5	23	51	9	88
100-500	4	17	74	6	101
Over 500	3	10	105	4	122

The production of meat is computed on an annual slaughter of 20 per cent. of all horned cattle, 40 per cent. of sheep, and 100 per cent. of pigs, the average carcase being taken at 600 lbs. beef, 70 lbs. mutton, and 100 lbs.* pig. The following table shows the production and consumption:—

Period	Tons of Meat Consumed Yearly			Lbs. Meat per In-habitant
	Home-Grown	Imported	Total	
1831-40	940,000	...	940,000	80
1841-50	980,000	...	980,000	80
1851-60	1,000,000	44,000	1,044,000	81
1861-70	1,020,000	131,000	1,151,000	87
1871-80	1,050,000	288,000	1,338,000	87
1881-87	1,030,000	540,000	1,570,000	98

Machinery has introduced great changes in the mode of cultivation since the Waterloo epoch. The Census of 1821 showed 33 per cent. of the classified population of England was engaged in agriculture, that of 1881 only 12 per cent. The following table shows the number engaged in agriculture at various dates, and the approximate gross value of all farming products:—

AGRICULTURAL HANDS AND PRODUCT, UNITED KINGDOM

Year	Numbers Engaged	Product, Millions £	Product per Hand
			£
1821	2,930,000	190	65
1831	3,050,000	195	65
1841	3,401,000	200	59
1851	3,519,000	220	63
1861	3,149,000	240	76
1871	2,808,000	250	89
1881	2,561,000	251	98

The numbers engaged before 1841 are estimates as concerns Ireland and Scotland, the rest are from Booth's reports.

The earliest estimate of the value of agricultural products in England was by Gregory King, in 1698, as follows:—

	Bushels	Value, £	Pence per Bushel
Wheat	14,000,000	2,450,000	42
Barley	27,000,000	2,700,000	24
Rye	10,000,000	1,250,000	30
Oats	16,000,000	1,200,000	18
Pease and beans .	11,000,000	1,375,000	30
Vetches	1,000,000	100,000	24
Total . .	79,000,000	9,075,000	27

* Major Craigie computes that 1000 cattle give 67 tons of beef, and 1000 sheep 12½ tons mutton yearly; my estimate is 54 tons of beef, and 12½ tons of mutton.

He computed that 16 per cent. was required for seed, leaving the balance for consumption 66 million bushels, equal to 10 bushels per inhabitant. The following estimates have since been recorded of the total value of agricultural and pastoral products yearly :—

England and Wales			United Kingdom		
Date	Author	Mills. £	Date	Author	Mills. £
1812	Stevenson	131	1812	Colquhoun, &c.	260
1820	Middleton	127	1834	Spackmann	250
1846	M'Culloch	142	1846	M'Culloch	218
1889	Mulhall	158	1889	Mulhall	251

Colquhoun's estimate in 1812 was 194 millions sterling for tillage, omitting pastoral products, which were afterwards valued at 66 millions, thus making a total of 260 millions. This was only 34 millions over Arthur Young's estimate in 1790, which did not include Ireland. We may, therefore, conclude that the value of farm products has been almost stationary for 100 years, except the effects of a passing season of war or scarcity. Colquhoun's table showed thus in 1812 :—

	Quantity	Value, £
Wheat, tons . . .	1,800,000	32,300,000
Other grain, tons . .	5,200,000	41,300,000
Potatoes	...	14,200,000
Turnips	...	14,200,000
Fruit and vegetables . .	...	2,800,000
Hay, grass, &c. . .	...	89,200,000
Total . .	...	194,000,000

VALUE OF CROPS, &C., IN 1889

	England £	Scotland £	Ireland £	United Kingdom £	Price per Ton £
Wheat	13,100,000	400,000	500,000	14,000,000	6.5
Oats	7,200,000	3,600,000	4,800,000	15,600,000	5.7
Barley	9,600,000	1,300,000	1,200,000	12,100,000	6.6
All grain	29,900,000	5,300,000	6,500,000	41,700,000	...
Straw	5,300,000	900,000	1,100,000	7,300,000	1.1
Beans, &c.	1,800,000	100,000	...	1,900,000	5.0
Potatoes	7,000,000	2,700,000	8,000,000	17,700,000	2.7
Hay	17,700,000	1,700,000	8,000,000	27,400,000	1.7
Turnips, &c.	21,100,000	6,200,000	3,600,000	30,900,000	0.8
Hops	2,200,000	...	...	2,200,000	75.0
Flax	...	...	850,000	850,000	45.0
Sundries	2,100,000	100,000	650,000	2,750,000	...
Total	87,100,000	17,000,000	28,700,000	132,800,000	...
Animal products . . .	64,400,000	16,000,000	29,600,000	110,000,000	...
Sundries	6,700,000	900,000	800,000	8,400,000	...
Total	158,200,000	33,900,000	59,100,000	251,200,000	...

M'Culloch also made tables for each of the three kingdoms in 1846, which compare with the results in 1889 as follows :—

ALL FARM PRODUCTS, MILLIONS £

	1846			1889		
	Agricultural	Pastoral	Total	Agricultural	Pastoral	Total
England .	80	62	142	94	64	158
Scotland .	19	9	28	18	16	34
Ireland . .	28	20	48	29	30	59
U. Kingdom	127	91	218	141	110	251

The following table shows the profits of farming, out of which the tenant-farmer has to pay his rent and maintain his family :—

	Cost per Acre			Number of Acres	Amount
	£	s.	d.		£
Labour	2	5	0	48,000,000	108,000,000
Team	1	0	0	,,	48,000,000
Taxes and Tithes .	0	8	4	,,	20,000,000
Seed	0	10	0	21,200,000	10,600,000
Manure	0	12	0	,,	12,700,000
Balance for rent, &c.	1	1	3	48,000,000	51,900,000
Total value of farm products . . .					251,200,000

Allowing the tenant one-half of the profits to support his family, the landlord's share would be 10½ shillings per acre.

Comparing M'Culloch's tables with the value of products in 1889, we find as follows :—

VALUE OF ALL FARM PRODUCTS

	1831	1846	1889
	England	England	United Kingdom
	£	£	£
Grain	53,300,000	51,500,000	41,700,000
Green crops . . .	15,300,000	28,500,000	53,600,000
Hay and straw . .		13,000,000	34,700,000
Meat		26,200,000	55,200,000
Dairy		12,000,000	31,200,000
Poultry and eggs .	59,430,000	1,400,000	9,100,000
Foals		3,000,000	5,800,000
Hides, wool, &c. .		4,300,000	9,200,000
Timber		1,800,000	1,400,000
Vegetables, fruit, &c.		...	9,300,000
Total . . .	128,030,000	141,700,000	251,200,000

IRELAND

According to Sir W. Petty, the war of Cromwell reduced Ireland to a wilderness, three-fourths of the cattle being destroyed : the value of live-stock fell from four millions sterling in 1641 to £500,000 in 1652, and such was the scarcity of grain, that a barrel of wheat rose in that interval from 12 to 50 shillings. The areas cultivated and uncultivated at various dates show thus :—

ACREAGE

Year	Cultivated	Uncultivated	Total	Authority
1726	11,043,000	9,777,000	20,820,000	Browne
1805	13,440,000	7,380,000	,,	Newenham
1812	13,454,000	7,366,000	,,	,,
1837	14,604,000	4,216,000	,,	Official
1874	15,720,000	3,100,000	,,	,,
1888	15,060,000	3,760,000	,,	,,

Secretary Larcom's statement of the crops in 1847 (excluding hay) compares with the returns for 1887 thus :—

	Crop		Value	
	1847	1887	1847	1887
			£	£
Wheat, bushels	24,000,000	1,900,000	6,700,000	320,000
Oats, ,, .	92,000,000	43,500,000	11,500,000	3,630,000
Barley, &c. ,, .	13,000,000	4,800,000	2,300,000	600,000
Potatoes, tons .	2,000,000	3,570,000	8,200,000	10,800,000
Turnips, ,, .	5,800,000	3,170,000	3,500,000	1,200,000
Total . .	...	...	32,200,000	16,550,000

The acreage of crops, according to Larcom and other official returns, was :—

ACREAGE

	1847	1852	1859	1867	1876	1888
Wheat	744,000	354,000	466,000	281,000	120,000	90,000
Oats	2,201,000	2,283,000	1,981,000	1,680,000	1,487,000	1,280,000
Barley, &c. .	333,000	340,000	205,000	163,000	242,000	200,000
Potatoes . .	284,000	877,000	1,203,000	1,026,000	881,000	805,000
Turnips . .	384,000	357,000	322,000	326,000	345,000	290,000
Flax . . .	58,000	137,000	...	218,000	133,000	114,000
Sundries . .	95,000	122,000	114,000	130,000	138,000	156,900
Clover, &c. .	1,140,000	1,270,000	...	1,660,000	1,860,000	1,205,000
Total . .	5,239,000	5,740,000	...	5,484,000	5,206,000	4,140,000

The Registrar-General for Ireland published recently his estimate of the agricultural products in cycles of five years thus :—

	Average Annual Value		
	1851-55	1866-70	1884-88
	£	£	£
Crops	43,660,000	27,935,000	16,470,000
Cattle, &c. . .	28,330,000	44,280,000	37,550,000
Total . .	71,990,000	72,215,000	54,020,000

Since 1870 the annual product of farming has declined 18 millions sterling. The landlords have voluntarily or judicially had their rents reduced about 30 per cent. —say, 3 millions sterling on a rental of 10 millions ; the tenants have suffered the rest of the loss, 15 millions sterling.

This loss of 18 millions sterling per annum, recorded by the Registrar-General, is, as he shows, 25 per cent. of the total farm product of Ireland.

In 1843-45 Sir Richard Griffith valued the crops, exclusive of grass and hay, at £43,000,000. In 1861 Hancock valued all crops at £34,900,000 ; and Fisher at £36,800,000. It would appear that in the preceding table hay is counted not with crops, but in the item of cattle products.

The decline of agriculture in Ireland has been mainly due to the cause stated by John Stuart Mill :—

"Alone among mankind the Irish peasant cannot be better or worse off by any act of his. If industrious or prudent, nobody but the landlord gains, if lazy or intemperate, it is at the landlord's expense."

Nevertheless, the value of live-stock has almost trebled since 1841.

VALUE OF LIVE-STOCK

					£
1841 .	.	.	.	.	21,100,000
1855 .	.	.	.	.	33,100,000
1888 .	.	.	.	.	55,200,000

The numbers of live-stock in 1855 compare with those of 1888 thus :—

	Number		Value	
	1855	1888	1855	1888
			£	£
Horses . .	556,000	507,000	4,500,000	15,200,000
Cattle . .	3,560,000	4,100,000	23,200,000	32,800,000
Sheep . .	3,602,000	3,627,000	3,900,000	4,900,000
Pigs . . .	1,180,000	1,398,000	1,500,000	2,300,000
Total . .	...	...	33,100,000	55,200,000

The increase has been rather in value than in number, viz. :—

			In Value	In Number
Horses .	.	.	227 per cent.	0 ...
Cattle .	.	.	41 ,,	15 per cent.
Sheep .	.	.	26 ,,	0 ...
Pigs .	.	.	54 ,,	20 per cent.

During the eighteenth century 60 per cent. of the Irish exports were meat, the price of which rose from twenty shillings per cwt. in 1776 to fifty shillings in 1800. After the Waterloo epoch almost down to the famine of 1846, England drew twenty million bushels of wheat yearly from Ireland.

Of late years the exportation of live-stock to Great Britain has declined, viz.:—

EXPORTS TO ENGLAND AND SCOTLAND.

				1877	1887
Cattle .	.	.	.	649,000	669,000
Sheep .	.	.	.	630,000	548,000
Pigs .	.	.	.	585,000	480,000

Emigration has drained the country so largely of men in the vigour of life that pauperism increased 46 per cent. between 1877 and 1887 (see *Paupers*). For rental, value, and tenure, see *Land*.

SCOTLAND

M'Culloch's tables for 1814 and 1846, with subsequent official returns, are as follows :—

ACREAGE

	1814	1846	1857	1867	1878	1888
Wheat	140,000	350,000	243,000	110,000	75,000	70,000
Oats	1,260,000	1,300,000	930,000	1,000,000	1,030,000	1,015,000
Barley, &c.	398,000	500,000	182,000	215,000	290,000	255,000
Turnips	410,000	450,000	470,000	480,000	500,000	480,000
Potatoes	80,000	200,000	145,000	150,000	165,000	160,000
Sundries	48,000	40,000	...	...	25,000	40,000
Clover, &c.	220,000	550,000	...	...	...	1,670,000
Total	2,556,000	3,390,000	...	...	...	3,690,000

M'Culloch estimated the farming products of 1846 as follows:—

	£
Grain	8,100,000
Green crops	10,600,000
Pastoral products . . .	9,000,000
Total . . .	27,700,000

He estimated the grain produced at 48 million bushels, against Larcom's estimate same year for Ireland, 129 millions.

The numbers of live-stock were:—

	1857	1867	1878	1888
Horses . .	...	...	191,000	190,000
Cattle . .	970,000	960,000	1,095,000	1,110,000
Sheep . .	5,750,000	6,070,000	7,036,000	6,730,000
Pigs . . .	137,000	204,000	140,000	155,000

For tenure and rental, see *Lands*.

ISLANDS

Isle of Man.—Area 145,000 acres, of which 98,000 cultivated, 24,000 under grain, 12,000 green crops, and the rest clover, &c.

Jersey.—Area 29,000 acres, of which 20,000 cultivated, half green crops, half clover.

Guernsey, &c.—Area 20,000 acres, of which 12,000 cultivated; same mode as Jersey.

The products of these islands are included with those of England.

UNITED KINGDOM

AGRICULTURAL CAPITAL

Year	Millions, £ Sterling				£ per Inhabitant
	Land	Cattle	Sundries	Total	
1750	498	25	58	581	55
1780	702	35	81	812	65
1814	1,470	74	172	1,716	95
1843	1,677	94	197	1,968	72
1850	1,705	104	201	2,010	72
1860	1,748	140	210	2,098	72
1868	1,925	170	233	2,328	75
1880	2,086	209	255	2,550	72
1887*	1,873	185	229	2,287	61

In the above table land is capitalised at 30 years' rental. As for cattle, it was valued by King in 1688 at 25 millions; the figures for 1814 and subsequent years are according to the numbers of live-stock at the several dates specified in table. Sundries are estimated at 10

* The actual value of land is supposed to be 1560 millions, the official valuation being 20 per cent. too high. In a paper read at the Surveyors' Institution in January 1890, Mr. H. H. Smith showed a decline of 523 millions sterling since 1880.

per cent. of the total, in preference to 14 per cent., adopted by Chaptal and other French economists.

There was a steady increase down to 1880, from which date agricultural capital has been declining, viz.:—

Period	Millions, £	£ per Annum
1750–1780	Increase, 231	7,450,000
1781–1814	,, 904	26,600,000
1815–1843	,, 252	8,700,000
1844–1860	,, 130	8,100,000
1861–1880	,, 452	22,600,000
1881–1889	Decline, 263	29,200,000

Notwithstanding the recent decline, agricultural capital still forms one-fourth of the wealth of the nation (see *Wealth*), and is almost three times as great as it was 100 years ago.

The distribution of this capital among the three kingdoms in 1887 was:—

AGRICULTURAL CAPITAL, MILLIONS £

	Land	Cattle	Sundries	Total	£ per Inhabitant
England . . .	1,362	104	163	1,629	57
Scotland . . .	213	26	27	266	61
Ireland . . .	298	55	39	392	80
United Kingdom	1,873	185	229	2,287	61

The relation between capital and product in 1887 was as follows:—

MILLION £

	Capital	Gross Product	Ratio to Capital
England	1,629	158	9.7 per cent.
Scotland	266	34	12.8 ,,
Ireland	392	59	15.0 ,,
United Kingdom	2,287	251	11.1 ,,

Further details will be found under the items *Cattle* and *Land*.

The value of tillage and pastoral products compares in the three kingdoms with the number of hands employed as follows:—

	Hands	Product, Million £	£ per Head
England . . .	1,341,000	158	118
Scotland . . .	234,000	34	145
Ireland	986,000	59	60
United Kingdom	2,561,000	251	97

FRANCE

This is the best cultivated country in Europe. The earliest statistics do not give us the total area under grain, being confined to wheat-growing in the last century, but the estimates of Chaptal, Rubichon, and Moreau, with the official reports of later times, afford some guide for the last ninety years, and may be summed up thus :—

Year	Acres under Grain	Crop, Millions of Bushels		
		Wheat	Oats, Rye, &c.	Total
1801–20	30,000,000	140	250	390
1825–35	32,000,000	170	310	480
1840–50	34,300,000	220	360	580
1860–76	36,000,000	265	450	715
1883–86	37,100,000	301	439	740

Official returns of wheat-growing. coupled with Moreau's tables since 1700, give the following :—

Year	Acres	Million Bushels	Bushels per Acre	Value of Crop, £
1700	12,400,000	83	6.7	12,000,000
1760	11,200,000	90	8.0	29,600,000
1764	12,400,000	97	7.8	28,100,000
1784	14,800,000	110	7.2	28,800,000
1791	11,500,000	130	11.2	37,800,000
1818	12,800,000	142	11.2	49,100,000
1839	13,900,000	195	14.0	60,800,000
1841	13,900,000	198	14.1	53,200,000
1851	15,000,000	238	15.9	49,800,000
1861	16,900,000	207	12.2	73,600,000
1871–80	17,100,000	270	15.7	90,800,000
1881–86	17,400,000	303	17.3	81,800,000
1889	17,600,000	309	17.5	74,200,000

Moreau states that 33 per cent. of the population were fed on wheat in the last century, and 60 per cent. in 1839. The average yield of grain was officially stated thus (Spallart) :—

BUSHELS, PER ACRE

Year				Wheat	Oats	Barley	Rye
1815	.	.	.	9.4	16.0	13.2	8.4
1835	.	.	.	14.7	19.1	15.4	13.7
1855	.	.	,	12.5	26.2	20.7	11.0
1875	.	.	.	16.0	24.0	19.1	15.6
1880	.	.	.	16.0	26.4	20.7	15.1
1884	.	.	.	17.8	26.2	20.2	16.7

Notwithstanding the increase of grain-growing, France has paid large sums for imported grain. From 1801 to 1849, her net imports of wheat alone cost her 26 millions sterling, and the imports of grain from 1860 to 1886 (over exports) cost 211 millions sterling. The trade returns show :—

Year	Net Imports of Grain		Annual Average	
	Millions of Bushels	Value, Million £	Millions of Bushels	Value, £
1861–70	92	32	9	3,200,000
1871–80	384	101	38	10,100,000
1881–86	346	78	58	13,000,000
Total	822	211	32	8,100,000

The importation of grain would have been still greater but for the rapid increase of potatoes, which have multiplied fivefold since 1820.

CROP OF POTATOES, TONS PER ANNUM

1815–20 . . 1,950,000	1861–80 . . . 6,500,000	
1831–40 . . 4,900,000	1883–86 . . 10,400,000	

The official returns of wine-growing since 1810 may be condensed as follows :—

VINEYARDS.

Period	Acres	Millions of Gallons	Value of Wine, £	Gallons per Acre
1810–12	4,064,000	455	26,600,000	112
1830–32	5,015,000	502	35,600,000	100
1840–42	5,230,000	790	52,700,000	151
1850–52	5,450,000	920	80,500,000	166
1860–62	5,510,000	703	68,900,000	126
1870–72	6,560,000	1,010	84,200,000	155
1880–82	5,150,000	720	59,200,000	139
1883–86	5,110,000	790	56,200,000	155
1889	4,550,000	525	44,000,000	112

Down to 1880 there was always a surplus of wine for exportation, but since that year the imports exceed the exports : the net importation in 1886 was 190 million gallons. The phylloxera completely destroyed 2,900,000 acres of vines, one-half of which have been newly planted with American and other vines, besides injuring 1,600,000 acres, which still yield crops. Only 2,100,000 acres of the vineyards of 1872 have escaped the pest.

Beet-root is another valuable crop, having been introduced by Bonaparte : the area and production have been approximately as follows :—

Year					Beet-Growing	
					Acres	Crop, Tons
1840	.	.	.	.	200,000	800,000
1860	.	.	.	.	490,000	3,000,000
1879	.	.	.	.	1,100,000	10,600,000
1880	.	.	.	.	1,310,000	14,800,000

In 1842 it was proposed in the Legislature to pull up the plantations and pay the owners £1,500,000 indemnity, but the bill was thrown out. The production of beet-sugar (see *Sugar*) at present exceeds 400,000 tons yearly against 35,000 in 1840.

Oil, flax, tobacco, chestnuts, &c., are crops of less note (see each under its own title).

M. Lavergne in 1859 compared the agricultural condition with that of 1789 as follows :—

ACRES

	1789	1859
Arable	61,720,000	64,190,000
Meadow	7,410,000	9,880,000
Gardens and vineyards . .	7,400,000	9,870,000
Woods and waste . . .	46,810,000	39,400,000
Total	123,340,000	123,340,000

Since 1848 no less than nine million acres of waste land have been reclaimed, the principal areas being approximately shown thus :—

ACRES

	1848	1884	Increase
Grain	34,500,000	37,500,000	3,000,000
Various crops .	23,000,000	24,500,000	1,500,000
Forest	16,200,000	20,700,000	4,500,000
Total . . .	73,700,000	82,700,000	9,000,000

Machinery was not much in use till after the reign of Louis Philippe; it was common in 1840 to see horses treading out grain, but in 1862 an official report showed 101,000 threshing-machines, of which 2850 were worked by steam. Improved methods led to a better yield per acre, viz. :—

	Yield, Bushels per Acre	
	1821-30	**1866-75**
Wheat	13	16
Oats	17	27
Barley	14	22

The yield of wheat in the first period was 550 to 100 lbs. seed, and in the second period 750.

The principal crops for 1888 compare with those of 1880 thus :—

	Acreage		Product	
	1880	**1888**	**1880**	**1888**
Wheat	16,990,000	17,180,000	274,000,000 bushels	273,000,000
Oats	8,580,000	9,230,000	230,000,000 ,,	225,000,000
Rye	4,560,000	4,040,000	70,000,000 ,,	62,000,000
Barley	2,600,000	2,240,000	54,000,000 ,,	44,000,000
Maize	1,660,000	1,420,000	28,000,000 ,,	30,000,000
Mixed	2,620,000	2,330,000	46,000,000 ,,	40,000,000
All grain	37,010,000	36,440,000	702,000,000 bushels	674,000,000
Potatoes	3,220,000	3,570,000	9,500,000 tons	10,400,000
Beet-root	1,110,000	1,310,000	14,800,000 ,,	12,200,000
Vines	5,450,000	4,550,000	653,000,000 gallons	525,000,000
Colza	340,000	180,000	4,660,000 bushels	2,710,000
Flax and hemp . . .	380,000	250,000	2,400,000 ,, seed	1,660,000
Olives	280,000	270,000	... bushels	6,620,000
Clover	2,580,000	2,250,000	... tons	3,790,000
Total . . .	50,370,000	48,820,000	...	...

The above is exclusive of 3,620,000 acres under other artificial grasses than clover, producing 6,100,000 tons grass yearly.

The statistics of live-stock at various dates have been as follows :—

Year	Horses	Cattle	Sheep	Pigs	Goats	Authority
1812	1,835,000	6,080,000	30,310,000	...	...	Smith
1830	2,500,000	7,130,000	29,130,000	4,500,000	1,210,000	M'Gregor
1840	1,870,000	9,930,000	32,150,000	4,500,000	900,000	Scknabel
1852	3,280,000	12,150,000	33,300,000	5,250,000	1,340,000	Official
1862	3,340,000	12,810,000	29,500,000	6,040,000	1,730,000	,,
1873	3,140,000	11,720,000	25,900,000	5,760,000	1,790,000	,,
1883	3,220,000	11,790,000	21,600,000	5,850,000	1,460,000	,,
1888	3,250,000	13,380,000	22,600,000	5,850,000	1,550,000	,,

The official valuation of live-stock in 1882 was :—

	No.	Value, £	£ per Head
Horses . . .	2,840,000	54,400,000	19.4
Mules . . .	250,000	4,300,000	17.2
Asses . . .	400,000	1,900,000	4.8
Cattle . . .	11,800,000	123,500,000	10.5
Sheep . . .	23,000,000	22,900,000	1.0
Goats . . .	1,500,000	1,200,000	0.8
Pigs	5,800,000	22,900,000	3.9
Total . .	...	231,100,000	...

The production of meat at various times, according to French writers, was :—

Years	Tons, Meat	Lbs. per Inhabitant
1840	671,000	43
1860	942,000	57
1880	1,155,000	67
1888	1,200,000	67

The above does not include horse-flesh, of which some 2000 tons are used at Paris alone.

In 1882 the annual slaughter was estimated thus :—

	Number	Tons, Meat	Lbs. per Carcase
25 per cent. of cattle .	3,300,000	640,000	430
33 per cent. of sheep .	7,700,000	210,000	60
70 per cent. of pigs . .	4,000,000	305,000	170

According to M. Lavergne, the production of meat was 39 lbs. per inhabitant in 1790, and 61 lbs. in 1859. (See *Food.*) The value of agricultural and pastoral products has been estimated at various dates as follows :—

Year	Value of Products, Millions £			Authorities
	Agricul-tural	Pas-toral	Total	
1815	134	88	222	Chaptal
1835	170	99	269	Schoen, Moreau
1843	212	101	313	Royer, Dupin
1862	307	...	...	Official
1882	322	182	504*	,,
1886	322	138	460	Mulhall

The number of persons engaged in agriculture was approximately as follows :—

Year	Principals	Retainers, &c.	Total
1851 . . .	7,310,000	14,620,000	21,930,000
1861 . . .	6,630,000	13,250,000	19,880,000
1872 . . .	6,170,000	12,340,000	18,510,000
1881 . . .	6,455,000	11,794,000	18,249,000

The number has declined 17 per cent. since 1851, while the value of products has increased, the ratio being about £49 per head in the former year, and £71 in 1886.

* The official table sums up a total of 538 millions sterling, but this includes £34,000,000 for 84 million tons of animal manure, which I am compelled to deduct, as other nations take no account of manure among agricultural products.

The official statement of crops for 1886 was as follows :—

	Tons	Value, £	Per Ton, £
Wheat	8,230,000	71,000,000	8.6
Oats.	4,220,000	29,200,000	7.0
Rye	1,620,000	10,300,000	6.4
Barley	1,150,000	7,200,000	6.3
Maize, &c. . .	1,720,000	11,600,000	6.7
All grain . . .	16,940,000	129,300,000	7.6
Potatoes . . .	11,290,000	22,500,000	2.0
Beetroot . . .	15,040,000	12,100,000	0.8
Hay	25,600,000	57,600,000	2.2
Apples	1,100,000	3,200,000	3.0
Chestnuts . . .	760,000	1,800,000	2.4
Mulberry leaves .	210,000	400,000	2.0
Olives	170,000	1,200,000	7.0
Colza, &c. . . .	94,000	1,100,000	12.0
Hemp	43,000	1,500,000	35.0
Flax.	30,000	1,200,000	40.0
Tobacco . . .	22,000	800,000	36.0
Wine, gallons .	670,000,000	49,000,000	Per gal. 18d.
All crops . . .		281,700,000	
Milk, gallons . .	1,620,000,000	46,800,000	Per gal. 7d.
Poultry and eggs		12,000,000	
Vegetables and fruit		30,000,000	
Timber, 1000 million cubic feet		10,000,000	⎫
Foals		8,000,000	⎬Not official
Meat, 1,200,000 tons		60,000,000	⎭
Hides, wool, tallow, wax, &c..		11,500,000	
Total		460,000,000	

The value of crops for 1888 was returned at 254 millions sterling, being 28 millions less than in 1886, of which 15 millions stood for loss in the vintage.

AGRICULTURAL CAPITAL

MILLIONS, £ STERLING

Year	Land	Cattle	Sundries	Total	Product	Ratio to Capital
						Per cent.
1815	1,293	53	149	1,495	222	15.0
1835	1,473	96	174	1,743	269	15.5
1852	2,106	166	252	2,524	356	14.1
1881	2,986	231	357	3,574	504	14.1
1886	2,688	218	323	3,229	460	14.4

The value of land is stated above, as given by Chaptal and Dutens for 1815 and 1835, by Government reports for 1852 and 1881, the figures for 1886 being an estimated reduction of 10 per cent. from 1881, the prevalent opinion in France being that the fall is 15 per cent. As regards cattle, Chaptal gives the value for 1815, and the subsequent estimates are according to the number of cattle at the respective dates. Sundries are estimated at 10 per

cent., although Chaptal and Dutens made them 14 per cent. of the total.

The increase of agricultural wealth was rapid down to 1881, viz. :—

Period	Millions, £	Per Annum, £
1815–35 . . .	248 increase	12,400,000
1836–52 . . .	781 ,,	46,000,000
1853–81 . . .	1,050 ,,	36,200,000
1882–86 . . .	345 decrease	69,000,000

The capital represented by agriculture is at present double what it was in the year 1815, and nearly 40 per cent. of the wealth of the nation.

See *Wealth.* For land-tenure, see *Land.*

GERMANY

Official returns give the area under tillage since 1837, thus :—

Year	Acres under Tillage	Grain, Million Bushels	Authority
1816	23,100,000	296	Fisher
1837	30,010,000	...	Official
1858	35,330,000	...	,,
1879	43,310,000	580	,,
1887	44,050,000	640	,,

The above area under tillage includes all crops except hay, which at present covers nearly 15 million acres. Since 1816 the area of tillage has almost doubled, and the production of grain more than doubled.

The area of tillage was distributed in this manner :—

ACRES OF TILLAGE

	1816	1837	1858	1887
Prussia . .	10,430,000	14,160,000	17,740,000 ⎫	27,600,000
Hanover . .	1,310,000	1,690,000	1,840,000 ⎬	
Bavaria . .	3,560,000	4,320,000	4,620,000	5,500,000
Wurtemburg	1,390,000	1,610,000	1,690,000	1,800,000
Saxony . .	1,200,000	1,650,000	2,120,000	1,900,000
Duchies, &c.	5,210,000	6,580,000	7,320,000	7,250,000
Total . .	23,100,000	30,010,000	35,330,000	44,050,000

According to a statement published in 1834, the kingdom of Prussia showed as follows :—

	Acres	An. Profit £
Arable and meadow . .	28,510,000	8,400,000
Pasture	13,620,000	3,300,000
Woods	17,300,000	1,100,000
Various	12,600,000	800,000
Total	72,030,000	13,600,000

The following table shows the tilled and untilled area of the several States, 1887 :—

AREA

	Prussia	Bavaria	Saxony	Wurtemburg	Small States	Total
Arable	27,600,000	5,500,000	1,900,000	1,800,000	7,250,000	44,050,000
Meadow	8,150,000	3,200,000	420,000	720,000	2,160,000	14,650,000
Forest	18,100,000	5,900,000	600,000	1,200,000	4,300,000	30,100,000
Pasture, &c . . .	26,450,000	2,800,000	580,000	480,000	7,290,000	37,290,000
Total . .	80,300,000	17,400,000	3,500,000	4,200,000	21,000,000	126,400,000

The area under principal crops in 1887 was as follows :—

ACRES

	Prussia	Bavaria	Saxony	Wurtemburg	Baden	Small States	Total
Wheat	2,700.000	800,000	120,000	75,000	100,000	955,000	4,750,000
Rye	10,950,000	1,550,000	520,000	550,000	300,000	1,470,000	15,340,000
Barley	2,300,000	850,000	100,000	220,000	150,000	680,000	4,300,000
Oats.	6,200,000	1,100,000	450,000	350,000	150,000	550,000	8,800,000
All grain	22,150,000	4,300,000	1,190,000	1,195,000	700,000	3,655,000	33,190,000
Meadow	8,150,000	3,200,000	420,000	720,000	500,000	1,660,000	14,650,000
Potatoes	4,980,000	740,000	300,000	200,000	210,000	820,000	7,250,000
Total . .	35,280,000	8,240,000	1,910,000	2,115,000	1,410,000	6,135,000	55,090,000

The crops were as follows :—

TONS IN 1887

	Prussia	Bavaria	Saxony	Wurtemburg	Baden	Small States	Total
Wheat	1,470,000	420,000	85,000	40,000	50,000	605,000	2,670,000
Rye, &c.	4,220,000	790,000	285,000	235,000	140,000	860,000	6,530,000
Barley	1,145,000	485,000	60,000	130,000	90,000	430,000	2,340,000
Oats.	2,890,000	590,000	295,000	180,000	80,000	825,000	4,860,000
All grain	9,725,000	2,285,000	725,000	585,000	360,000	2,720,000	16,400,000
Hay	6,650,000	6,130,000	520,000	1,260,000	920,000	2,420,000	17,900,000
Potatoes	16,250,000	2,730,000	1,230,000	680,000	730,000	3,520,000	25,140,000

The crops of recent years compared thus :—

	1880	1881-85	1886	1887	1888	1889
	Tons	Tons	Tons	Tons	Tons	Tons
Wheat	2,345,000	2,410,000	2,600,000	2,670,000	2,830,000	2,530,000
Rye	5,440,000	6,200,000	5,940,000	6,530,000	6,480,000	5,630,000
Barley	2,145,000	2,180,000	2,260,000	2,340,000	2,205,000	2,260,000
Oats	4,230,000	4,120,000	4,340,000	4,860,000	4,300,000	4,650,000
All grain	14,160,000	14,910,000	15,140,000	16,400,000	15,815,000	15,070,000
Hay	19,560,000	17,100,000	15,880,000	17,900,000	16,360,000	17,895,000
Potatoes	19,470,000	25,020,000	27,950,000	25,140,000	25,270,000	21,910,000
Beetroot	11,300,000	...	13,970,000	15,500,000	12,650,000	...
Turnips, &c. . . .	3,300,000	...	3,850,000	2,640,000	...	...
Tobacco	52,000	...	38,000	39,000	41,000	26,000
Hops. . . .	...	...	33,000	30,000	24,000	22,000
Wine, gallons . .	...	...	82,000,000	33,000,000	53,000,000	64,000,000

If we take the average for 1888–89 and compare same with that of the years 1881–85, we find an increase of 10 per cent. in wheat and oats, a falling-off in rye, and altogether an increase of 3 per cent. in the weight of grain produced. There is a decline of 6 per cent. in potatoes, while hay and beetroot remain stationary. Wine shows violent fluctuations, the yield in 1889 being almost double that of 1887. There is a remarkable decline in tobacco, the crop of 1889 being only half that of 1880, and also in hops, which have fallen off by one-third.

A table published in 1886 showed the production of grain in the previous year compared with population as follows :—

	Bushels, Grain	Population	Bushels per Head
Prussia . . .	347,000,000	28,300,000	12.3
Bavaria . . .	85,000,000	5,420,000	15.6
Saxony . . .	27,000,000	3,180,000	8.5
Wurtemburg .	16,000,000	1,990,000	8.0
Baden . . .	11,000,000	1,600,000	7.0
Mecklenburg .	22,000,000	680,000	32.5
Alsace . . .	18,000,000	1,560,000	11.5
Hesse . . .	11,000,000	960,000	11.4
Brunswick . .	8,000,000	370,000	21.5
Small States .	35,000,000	2,790,000	12.5
Total . .	580,000,000	46,850,000	12.3

The average yield per acre, according to observations in the several States spreading over a term of eight years ending 1885, was as follows :—

	Bushels per Acre					
	Prussia	Bavaria	Saxony	Wurtemburg	Baden	All Germany
Wheat . . .	18	20	23	18	17	19
Rye.	14	18	20	18	15	15
Barley . . .	21	23	25	25	23	22
Oats	24	28	35	29	27	27
Potatoes, cwts. .	58	76	80	68	70	64
Hay, cwts. . .	18	39	25	34	44	26

The following table of live stock is made up of the statements of Malchus, Schnabel, and Brachelli in 1828 and 1850, and official returns since the latter date :—

	1828	1850	1867	1873	1883
Horses	2,500,000	2,500,000	3,190,000	3,350,000	3,520,000
Cows	9,770,000	11,270,000	14,900,000	15,780,000	15,790,000
Sheep	17,300,000	21,330,000	28,020,000	25,000,000	19,200,000
Pigs	4,500,000	3,920,000	6,460,000	7,120,000	9,210,000
Goats	700,000	1,300,000	1,820,000	2,320,000	2,640,000

German writers compute the amount of seed to the acre, and the average product as follows :—

	Seed, lbs.	Product, lbs.	Equiv. in Bushels
Wheat	157	1,260	20.4
Rye	150	900	15.2
Oats	140	980	25.7
Barley	133	1,200	23.0

The quantity of grain retained for seed is usually 82 million bushels, or one-seventh of the whole crop. It is found that 100 lbs. wheat gave 82 lbs. flour, and 100 lbs. barley 78 lbs. malt.

The following table shows the live stock of Prussia at various dates :—

	1816	1837	1873	1883
Horses	1,240,000	1,470,000	2,280,000	2,420,000
Cattle	4,010,000	4,850,000	8,610,000	8,740,000
Sheep	8,260,000	15,010,000	19,630,000	14,750,000
Pigs	1,490,000	1,940,000	4,280,000	5,820,000

The returns for 1873 and 1883, include Hanover and other territories annexed to Prussia in 1867.

The distribution of live stock in 1883 was as follows :—

	Prussia	Bavaria	Saxony	Wurtemburg	Small States	All Germany
Horses	2,420,000	355,000	125,000	95,000	525,000	3,520,000
Cows	8,740,000	3,040,000	650,000	905,000	2,455,000	15,790,000
Sheep	14,750,000	1,180,000	150,000	550,000	2,560,000	19,190,000
Pigs	5,820,000	1,040,000	350,000	290,000	1,710,000	9,210,000
Goats	1,680,000	220,000	120,000	50,000	570,000	2,640,000

Per 100 Inhabitants						
Horses	6.9	4.7	8.5	5.0	6.6	6.5
Cows	25.1	40.0	43.4	46.4	30.7	29.2
Sheep	42.3	15.5	9.9	28.2	32.0	35.5
Pigs	16.7	13.7	23.7	15.0	21.4	17.0
Goats	4.8	2.9	7.8	2.8	7.1	4.9

Prussia is above the average in horses and sheep, Bavaria in cows, Saxony in horses, cows, and pigs, Wurtemburg in cows only. The ratios of sheep in Bavaria and Saxony are very low.

The value of all kinds of live-stock in 1883 was officially given as follows :—

	Number	Value, £	£ per Head
Horses	3,532,000	84,000,000	23.7
Cattle	15,787,000	153,700,000	9.7
Sheep	19,190,000	15,300,000	0.8
Pigs	9,206,000	23,800,000	2.6
Goats	2,645,000	2,000,000	0.7
Total	...	278,800,000	...

Prices of live stock have since declined about 6 per cent. ; the value in 1887 would be approximately £262,000,000 sterling.

The production of meat, calculating 500 lbs. per carcase of beef, 56 lbs. per sheep, 100 lbs. per pig, and 28 lbs. per goat, was as follows :—

Year	Meat, Tons	Lbs. per Inhabitant
1828	760,000	60
1850	890,000	60
1867	1,150,000	67
1885	1,375,000	64

The value of products in 1886 was approximately as follows :—

	Tons	£	Sundries	£
Wheat	2,600,000	18,700,000	Wine	5,000,000
Rye	5,940,000	33,900,000	Vegetables &c.	30,000,000
Barley	2,260,000	14,700,000		
Oats	4,340,000	25,200,000	Timber	13,000,000
			Dairy	55,300,000
All grain	15,140,000	92,500,000	Meat	68,700,000
Straw	15,100,000	15,100,000	Poultry	14,100,000
Hay	15,900,000	31,800,000	Tobacco, flax	4,000,000
Potatoes	28,000,000	56,000,000	Foals	9,000,000
Beet, &c.	17,800,000	14,400,000	Hides, wool, &c.	15,100,000
Principal crops	...	209,800,000	Sundries	214,200,000

	£
Agricultural products	262,000,000
Animal products	162,000,000
Total	424,000,000

The value of products at different dates was approximately thus :—

Year	Millions, £ Sterling			
	Agricultural	Pastoral	Total	Authority
1840	105	...	...	Journ. des Econ.
1856	151	80	231	Block, Viebahn
1886	262	162	424	...

The products in 1886 were distributed as follows :—

	Agriculture	Annual	Total	£ per Inhab.
	£	£	£	
Prussia . . .	149,000,000	99,800,000	248,800,000	9.0
Bavaria . . .	43,700,000	24,100,000	67,800,000	12.9
Saxony . . .	12,300,000	5,900,000	18,200,000	6.0
Wurtemburg .	10,500,000	7,700,000	18,200,000	9.4
Small States .	46,400,000	24,600,000	71,000,000	9.2
Total . .	261,900,000	162,100,000	424,000,000	9.4

The number of hands employed was approximately thus :—

Year	Hands	Product, £	£ per Head
1840 . . .	6,400,000	170,000,000	27
1856 . . .	7,400,000	231,000,000	31
1886 . . .	8,120,000	424,000,000	52

The introduction of machinery has increased production in a striking manner, one man now producing more than two did in 1840.

LAND VALUE

In 1837 the valuation of land in Prussia was 305 millions sterling. In 1856 Viebahn valued German lands at 1304 millions, a rise of 170 per cent. in twenty years. Wurtemburg averaged per acre 50 per cent. more value than the rest of Germany. Guided by Wurtemburg values in 1880 (that is, 50 per cent. over the rest), the value of Germany may be put down thus :—

	Acres	Price per Acre	Amount, Millions £
		£	
Arable	44,000,000	19	836
Meadow . . .	14,600,000	28	409
Garden, &c. . .	2,300,000	40	92
Pasture	35,400,000	5	177
Forest	30,100,000	10	301
Total . . .	126,400,000	...	1,815

The values of the principal States show thus :—

	Millions, £ Sterling					
	Prussia	Bavaria	Wurtem-burg	Saxony	Duchies, &c.	Total
Arable . . .	513	103	49	35	136	836
Meadow . . .	227	89	25	12	56	409
Gardens . . .	24	12	8	4	44	92
Pasture . . .	127	13	3	3	30	176
Forest . . .	176	58	20	6	42	302
Total . .	1,067	275	105	60	308	1,815

AGRICULTURAL CAPITAL

The amount of capital and product may be put down approximately as follows :—

Year	Capital, Millions £				Product, Millions £	Ratio to Capital, per Cent.
	Land	Cattle	Sundries	Total		
1837	480	88	63	631	170	27.0
1856	1,304	138	160	1,602	231	14.4
1886	1,815	262	230	2,307	424	18.4

In 1886 the agricultural capital stood approximately thus :—

	Millions, £ Sterling					
	Prussia	Bavaria	Saxony	Wurtem-burg	Duchies	Total
Land	1,067	275	60	105	308	1,815
Cattle	162	40	9	12	39	262
Sundries . . .	135	35	8	13	39	230
Total . .	1,364	350	77	130	386	2,307

Capital and product in the above States compare thus :—

	Millions, £ Sterling		
	Capital	Product	Ratio to Cap.
Prussia . . .	1,364	249	18.0
Bavaria . . .	350	68	19.0
Saxony . . .	77	18	23.2
Wurtemburg .	130	18	13.8
Duchies . . .	386	71	18.0
Total . .	2,307	424	18.4

The increase of agricultural capital in Germany was as follows :—

Interval	£	Average per Annum
1837–56	971,000,000	51,000,000
1856–86	705,000,000	23,500,000

The most rapid increase occurred between 1848 and 1858, consequent on the breaking up of large estates among the peasantry. See *Lands*.

RUSSIA

The area under grain previously to 1870 is not known, but may be estimated from the table of production, as below, published officially.

Period	Grain, Millions of Bushels Yearly			Approximate Area, Millions of Acres
	Crop	Exported	Home Con-sumption	
1800–13	890	10	880	100
1834–40	1,040	27	1,013	110
1841–47	1,210	32	1,178	120
1857–63	1,270	34	1,236	130
1871–80	1,730	146	1,584	167

The emancipation of serfs in 1861 was followed by a great increase of grain production.

These statistics refer to Russia proper, exclusive of Poland, Finland, Caucasus, or Siberia. The distribution of area is shown as follows :—

	Area, Acres		Product in 1887
	1872	1881	
			Tons
Grain	154.800,000	159,800,000	44,250,000
Potatoes . . .	3.170,000	3,710,000	7,500,000
Flax and hemp .	3,060,000	5,170,000	540,000
Meadow and pasture. . . }	144,000	176,000,000	...
Forest	500,000	485.000,000	120,000,000
Waste. . . .	439,000	414,000,000	...
Total . .	1,244,000,000	1,244,000,000	...

The grain-crops of 1887 compare with those of 1872 as follows :—

	Millions of Bushels		Area under Grain	
	1872	1887	1872	1881
Wheat . .	158	269	28,700,000	28,900,000
Rye . . .	547	721	66,400,000	64,600,000
Oats . . .	544	599	32,800,000	34,900,000
Barley . .	125	162	15,500,000	12,500,000
Maize, &c. .	86	152	11,400,000	18,900,000
Total . .	1,460	1,903	154.800,000	159.800,000

Kaufmann gives the average crops of Russia and Poland in the years 1870–78, and the average value in the years 1878–81, as follows :—

	Millions of Bushels			Value, £
	Russia	Poland	Total	
Wheat	176	15	191	44.800,000
Rye	556	47	603	98,800,000
Oats.	446	36	482	50,500,000
Barley, &c. . .	260	25	285	38,900,000
Total . . .	1,438	123	1,561	233,000,000

He shows, moreover, that the crops during the ensuing years 1883–84–85 gave an average (for Russia and Poland) as follows :—

	Million Bushels	Tons
Wheat.	231	6,350,000
Rye	675	17,700,000
Oats	503	8,700,000
Barley, &c. . . .	285	6,450,000
Total	1,694	39,200,000

So great, however, was the fall in prices that the grain crops of 1884 were valued at only £156,400,000.
A moujik's farm averages 35 acres, which requires three men to cultivate ; the product is estimated thus :—

	Acres	Bushels			
		Crop	Food	Seed	For Sale
Rye	10	100	70	17	13
Wheat	4	30	5	5	20
Oats, &c.	10	120	30	15	75
All grain . . .	24	250	105	37	108

The earliest official returns of live-stock are those of 1850, but we have also Schnabel's and Malchus's estimates for 1828 :—

	1828	1850	1870	1889
Horses . .	12,000,000	13,500,000	15,600,000	20,020,000
Cattle . .	19,000,000	20,960,000	21,400,000	23,840,000
Sheep . .	36,000,000	37,530,000	45.300,000	47,510,000
Pigs . . .	15,800,000	8,890,000	9,100,000	9,200,000
Goats. . .	...	1.600,000	1,200,000	1,370,000

The production of meat, at 500 lbs. per beef carcase, 50 lbs. per sheep, and 100 lbs. per pig, was as follows :—

Year	Tons, Meat	Lbs. per Inhabitant
1828	1,430,000	65
1850	1,670,000	67
1870	1,760,000	60
1889	1,885,000	51

The value of live-stock was approximately as follows :—

	No.	Price, £	Value, £
Horses . . .	20,020,000	18.0	360,000,000
Cattle . . .	23,840,000	7.5	178,800,000
Sheep . . .	47,510,000	0.5	23,860,000
Pigs	9,200,000	1.4	12,900,000
Goats . . .	1,370,000	0.3	400,000
Total . .	...	...	575,900,000

The value of products in 1887 was as follows :—

	Tons	£	Sundries	£
Wheat . .	7,500,000	37,100,000	Wine . .	3,800,000
Rye . . .	18,900,000	79,200,000	Beetroot .	4,000,000
Barley . .	3.750,000	14,800,000	Vegetables	32,000,000
Oats. . .	10,350,000	35,000,000	Poultry .	12,000,000
Buckwheat &c. . }	3,750,000	15,000,000	Tobacco .	3,200,000
			Dairy . .	47,700,000
			Timber . .	40,000,000
All grain .	44.250,000	181,100,000	Meat . .	63,000,000
Straw . .	44,000,000	22,000,000	Foals . .	38,000,000
Hay . . .	60,000,000	60,000,000	Hides, wool, &c. }	28,000,000
Potatoes .	7,500,000	11,200,000		
Flax, &c. .	540,000	16,200,000		
			Sundries .	272,500,000
Principal crops . }	...	290,500,000		

	£
Agricultural products . . .	373,200,000
Animal products . . .	189,800,000
Total	563,000,000

The values at the following dates were approximately :—

Year	Millions, £ Sterling		
	Agricultural	Animal	Total
1834	188	60	248
1850	213	82	295
1872	287	135	422
1887	373	190	563

The agricultural population in 1884 was approximately 56,815,000, but the number of adults engaged in tillage and pasture was not over 22,700,000, which gives an average product yearly of £25 per head.

LAND VALUE

Before the Crimean war the ordinary price of land was about £1 per acre, but when the emancipation of the serfs

was decreed in 1861, the Government paid an indemnity to the nobles averaging 29 shillings per acre. According to the British Ambassador, Sir A. Buchanan, the value in 1869 was doubled by the emancipation, and this is confirmed by Strebinsky, whose estimate in 1879 was £3 per acre. This applies only to cultivated land, the value of waste and forest being about one-tenth. The following table shows the values :—

Year	Area, Millions of Acres			Value, Millions £ Sterling		
	Culti-vated	Forest, &c.	Total	Culti-vated	Forest	Total
1834	183	1,061	1,244	183	106	289
1850	200	1,044	1,244	200	104	304
1870	305	939	1,244	610	188	798
1886	345	899	1,244	1,035	270	1,305

AGRICULTURAL CAPITAL

Year	Millions, £ Sterling			
	Land	Cattle	Sundries	Total
1834	289	176	52	517
1850	304	223	59	586
1870	798	409	134	1,341
1886	1,305	576	209	2,090

The increase of agricultural capital was as follows :—

Period	Millions, £ Sterling	Per Annum, £
1834–50	69	4,060,000
1851–70	755	37,750,000
1871–86	749	46,800,000

The emancipation of the serfs added about 1200 millions sterling to the rural wealth in 26 years, from 1860 to 1886. See *Lands*.

POLAND

Poland has an area of 32 million acres, of which nearly one-half is cultivated. In 1864 feudalism was abolished, the nobles receiving £24,000,000 for 21 million acres, distributed in ten-acre lots among 2,064,000 male serfs of all ages, three-fourths of the amount being advanced by Government and the rest made good by the serfs. The number of serfs is one-tenth of those who were emancipated in Russia ; the area of the land given them (21 million acres) is one-ninth of the land so expropriated in Russia.

According to Kaufmann the average crops of Poland in the years 1870–78 were as follows :—

	Million Bushels	Value, £
Wheat	15	3,600,000
Rye	47	8,100,000
Oats	36	3,600,000
Barley, &c. . . .	25	4,000,000
Total	123	19,300,000

According to Fisher (Food-Supply, 1860) the products of Poland increased as follows :—

Tons Produced		
	1822	1857
Grain	800,000	2,300,000
Potatoes	280,000	1,750,000
Meat	85,000	157,000

The total value of farm products may be set down approximately thus :—

	£
Grain crops	19,300,000
Other products	14,700,000
Cattle farming	21,000,000
Total . .	55,000,000

The value of farms varies from £2 to £8 per acre, and the total agricultural capital is more or less £200 millions sterling, of which three-fourths are represented by land.

The number of agricultural male peasants was 1,240,000 in 1867, and is now about 1,600,000 ; the ratio of agricultural products is about £34 per head.

FINLAND

This territory is distinct from Russia, and has an area or 92 million acres, viz. :—

Estates Class					Acres
Nobles					5,800,000
Peasants					50,200,000
Crown					30,600,000
Waste, &c.					5,600,000
Total . .					92,200,000

Nobles' estates average 3000 acres, peasants 250 acres. Cultivated lands cover 7 million acres, of which 6 millions are meadow, forest comprising 50 million acres, and the remaining 35 millions being waste land or lakes. Grain crop averages 12 million bushels ; not enough for home consumption.

Neumann Spallart gives the following agricultural statistics for the average of 1875–81 :—

	Acres	Crop, Bushels	Value, £
Wheat	7,000	100,000	20,000
Rye	700,000	10,000,000	1,700,000
Barley	300,000	5,000,000	900,000
Oats	300,000	7,000,000	900,000
Various	15,000	500 000	40,000
Total . .	1,322,000	22,600,000	3,560,000

Cattle comprised 1,030,000 horned cattle, 1,030,000 sheep, and 150,000 pigs, which would produce yearly 70,000 tons of meat, worth £3,500,000. The total products would be approximately worth 15 millions sterling, and the capital about 70 millions. Agricultural population about 400,000 male adults.

AUSTRIA-HUNGARY

Not more than 43 per cent. of the Empire is cultivated, 31 per cent. being forest, and 26 per cent. pasture plains or waste lands. The area under crops, other than meadow, has increased only 120,000 acres per annum in the last fifty years.

Year	Acres under Crops	Grain Crop. Mill. Bush.	Wine, Mill. Gall.	Authority
1828	...	367	590	Malchus
1836	38,400,000	364	470	Becker
1846	...	480	...	Fisher
1850	...	550	500	Brachelli
1862	...	560	500	Official
1876	37,500,000	480	160	,,
1880	39,600,000	601	92	,,
1885	44,500,000	676	207	,,

Becker's and other tables for 1836 (excluding the Italian provinces) compare with those of 1887 as follows, the latter not including Bosnia or Herzegovina :—

	Crop, Million Bushels, 1836.			Million Bushels, 1887		
	Austria	Hungary	Total	Austria	Hungary	Total
Wheat . . .	17	48	65	51	141	192
Oats	68	48	116	102	60	162
Rye	52	48	100	88	50	138
Barley, &c. . .	35	48	83	90	136	226
All grain . .	172	192	364	331	387	718
Wine, million } gallons . . }	75	392	467	103	109	212

Grain has increased 90 per cent. since 1836, although the area under crops has barely risen 20 per cent. ; this is due to improved methods and machinery since the expropriation of the lands in 1848, when they were distributed among the peasantry (see *Serfs*).

Wine has declined more than one-half.

The production of potatoes has increased as follows :—

Year				Tons	Authority
1846	.	.	.	2,300,000	Fisher
1859	.	.	.	5,100,000	,,
1885	.	.	.	11,000,000	Official

The acreage of the two kingdoms in 1887 was thus :—

	Austria	Hungary	Total
Wheat	2,875,000	6,860,000	9,735,000
Barley	2,795,000	2,480,000	5,275,000
Oats.	4,630,000	2,580,000	7,210,000
Rye	4,985,000	2,770,000	7,755,000
Maize	890,000	4,520,000	5,410,000
Buckwheat, &c. .	1,490,000	605,000	2,095,000
All grain , , .	17,665,000	19,815,000	37,480,000
Potatoes . . .	2,760,000	1,020,000	3,780,000
Beetroot . . .	760,000	340,000	1,100,000
Vineyards . . .	580,000	870,000	1,450,000
Hops	35,000	...	35,000
Tobacco . . .	5,000	135,000	140,000
Clover	2,010,000	...	2,010,000
Gardens . . .	920,000	130,000	1,050,000
Meadow . . .	7,700,000	6,360,000	14,060,000
Pasture . . .	13,015,000	32,015,000	45,030,000
Forest	24 150.000	22,515,000	46,665.000
Total . . .	69,600,000	83,200,000	152,800,000

The value of grain crops is stated by Spallart thus :—

MILLIONS £ PER ANNUM

Years						Austria	Hungary	Total
1850 .	.	.	.	.	.	...	...	60
1870 .	.	.	.	.	.	...	...	83
1877–80 .	.	.	.	.		40	50	90
1881–84 .	.	.	.	.		41	57	98

The ordinary yield of grain is only fivefold ; 130 million bushels are required for seed.

Becker's and Schnabel's tables of live-stock and subsequent official returns show :—

	1836	1850	1870	1880
Horses . .	2,060,000	3,240,000	3,540,000	3,560,000
Cattle . .	10,010,000	10,460,000	12,630,000	13,850,000
Sheep . .	15,990,000	17,080,010	20,100,000	13,680,000
Pigs . . .	5,500,000	7,410,000	6,990,000	6,880,000
Goats . .	850,000	...	1,550,000	1,280,000

The numbers respectively for Austria and Hungary in 1880 were :—

	Austria	Hungary	Total	Percentage		
				Austria	Hungary	Total
Horses .	1,480,000	2,080,000	3,560,000	42	58	100
Cattle .	8,580,000	5,310,000	13,890,000	61	39	100
Sheep .	3,840,000	9,840,000	13,680,000	28	72	100
Pigs .	2,720,000	4,160,000	6,880,800	39	61	100
Goats .	1,010,008	330,000	1,340,000	75	25	100

The production of meat, taking the carcase of beef at 500 lbs., sheep 56 lbs., and pig 100 lbs., was as follows :—

Year				Meat, Tons	Lbs. per Inhabitant
1836	.	.	. .	840,000	67
1850	.	.	. .	880,000	66
1870	.	.	. .	970,000	62
1880	.	.	. .	980,000	57

Assuming the values of the various kinds of stock to be 20 per cent. per head less than in Germany, we find :—

	No.	Price, £	Value, £
Horses . . .	3,560,000	19	67,600,000
Cattle . . .	13,890,000	8	111,200,000
Sheep . . .	13,680,000	0.6	8,300,000
Pigs . . .	6,880,000	2	13,800,000
Goats . . .	1,340,000	0.6	800,000
Total . .	...	...	201,700,000

The value of products in 1887 was approximately thus :—

	Tons	£	Sundries	£
Wheat . .	5,300,000	37,100,000	Wine . .	17,300,000
Oats. . .	2,800,000	14,000,000	Vegetables	22,000,000
Rye . .	3,600,000	19,800,000	Timber. .	18,000,000
Barley . .	2,600,000	15,600,000	Tobacco .	1,800,000
Maize . .	2,200,000	12,100,000	Flax, &c. .	2,200,000
Buckwheat } &c. . }	600,000	3,600,000	Dairy . .	34,500,000
			Poultry . .	7,800,000
			Meat . .	44,100,000
All grain .	17,100,000	102,200,000	Foals . .	10,000,000
Straw . .	17,000,000	12,800,000	Hides, } wool, &c. }	10,100,000
Hay . . .	14,000,000	21,000,000		
Potatoes .	11,000,000	22,000,000		
Beetroot .	6,500,000	5,000,000	Sundries .	167,800,000
Principal } crops }	...	163,000,000		

	£
Agricultural products	224,700,000
Animal products. . . .	106,100,000
Total .	330,800,000

Becker's estimate of products in 1840 compares with later years as follows :—

Year	Millions, £ Sterling		
	Agricultural	Pastoral	Total
1840	160	45	205
1863	194	87	281
1887	225	106	331

The shares corresponding to the two kingdoms in 1887 were as follows :—

	Millions, £ Sterling		
	Austria	Hungary	Total
Agricultural	120	105	225
Pastoral	55	51	106
Total . .	175	156	331

The number of hands engaged in agriculture in 1870 and 1880 showed thus :—

Year	Austria	Hungary	Total
1870	5,520,000	5,010,000	10,530,000
1880	6,160,000	4,520,000	10,680,000

The result in 1887 shows an average product of £29 per head in Austria and £35 in Hungary, or £31 for the whole.

LAND VALUE

The emancipation of Austrian serfs in 1849 had such effect that Austrian economists say the value of land doubled between 1846 and 1866. In the latter year, according to the Embassy report, it was £15 per acre for cultivated, and £3 for forest or waste land. In 1884 another valuation was made, respecting which Professor Sternegg made investigations, and found the real value was 66 per cent. higher, viz. :—

	£
Nominal annual value . . .	16,500,000
Real rental	27,500,000

Capitalising the rental at twenty-five-fold, we find the value of lands in Austria proper (excluding Crown-lands and forests) was 688 millions sterling.

The values of land would, therefore, appear to have been as follows :—

MILLIONS, £ STERLING

Year	Cultivated	Forest and Pasture	Total
1840	396	147	543
1866	885	276	1,161
1885	1,073	284	1,357

The proportions in 1885 were as follows :—

	Austria	Hungary	Total, Million £
Cultivated . .	594	479	1,073
Forest, &c. . .	112	172	284
Total . . .	706	651	1,357

AGRICULTURAL CAPITAL

Year	Millions, £ Sterling			
	Land	Cattle	Sundries	Total
1840	543	89	70	702
1866	1,161	150	146	1,457
1885	1,357	202	173	1,732

The distribution of capital in the two kingdoms in 1887 was approximately thus :—

	Millions, £ Sterling		
	Austria	Hungary	Total
Land	706	651	1,357
Cattle	106	96	202
Sundries . . .	90	83	173
Total . . .	902	830	1,732

The ratio between capital and product was as follows :—

	Millions, £ Sterling		Ratio to Capital
	Capital	Product	
Austria	902	175	19.3
Hungary . . .	830	156	18.8
Total . . .	1,732	331	19.1

The ratios of the whole monarchy between capital and product at various dates are shown approximately as follows :—

Year	Millions, £ Sterling		Ratio to Capital
	Capital	Product	
1840	702	205	29.2
1866	1,457	281	19.3
1887	1,732	331	19.1

The increase of capital has been as follows :—

Period	Millions, £ Sterling	£ per Annum
1840–66	755	27,700,000
1867–85	284	14,900,000
46 years	1,039	22,600,000

BOSNIA

The provinces of Bosnia and Herzegovina, recently annexed to Austria, produce 8 million bushels of grain, viz. :—

Grain Crop, Bushels		Live Stock	
Wheat . . .	1,500,000	Horses	210,000
Maize . . .	3,300,000	Cows	505,000
Oats, barley, &c.	3,000,000	Sheep	1,315,000
Total . .	7,800,000		

MONTENEGRO

This little principality has an area of 2,100,000 acres, or 9 to each inhabitant. Some maize, oats, and potatoes are grown. The live-stock comprises 3000 horses, 60,000 cows, and 350,000 sheep and goats.

ITALY

The area of the kingdom has been distributed as follows :—

	Acres		
	1868	1874	1880
Wheat . . .	9,500,000	11,700,000	11,700,000
Maize, &c. . .	6,200,000	8,200,000	8,600,000
Meadow . .	2,900,000	6,000,000	6,000,000
Olives . . .	1,400,000	2,200,000	2,200,000
Chestnuts . .	1,500,000	1,200,000	1,200,990
Vineyards . .	4,000,000	4,500,000	4,800,000
Forest . .	10,200,000	9,000,000	10,300,000
Pasture and waste .	35,100,000	28,000,000	26,000,000
Total .	70,800,000	70,800,000	70,800,000

The above are official returns, except as regards vineyards in 1868, and meadow 1874 and 1880, the latter being estimated on basis of the hay-crop officially stated (at one ton per acre). It appears from the foregoing that 9 million acres have been brought into cultivation in twelve years.

We have statistics in 1840 for Naples, Sicily, Austrian Italy, and Papal States, viz. :—

	Acreage (1840)				
	Naples	Sicily	Austrian Prov.	Papal States	Total
Arable	7,700,000	3,100,000	2,200,000	1,200,000	14,200,000
Vineyards	500,000	1,000,000	2,500,000	100,000	4,100,000
Forest	1,900,000	1,100,000	1,600,000	900,000	5,500,000
Pasture, &c.	8,600,000	1,000,000	6,400,000	8,700,000	24,700,000
Total . . .	18,700,000	6,200,000	12,700,000	10,900,000	48,500,000

The kingdom of Sardinia, which is not included above, was found in 1870 to produce 16 per cent. of the grain, and 18 per cent. of the wine of Italy. Taking this into account, the total figures for Italy in 1840 as compared with 1888 would stand thus :—

Acreage

	1840	1888
Arable . . .	16,900,000	21,440,000
Vineyards . . .	5,000,000	7,700,000

There have been various estimates of the production of grain and wine since 1828, from which it would appear that both have doubled in sixty years. A notable improvement of agriculture followed the expulsion of the Austrians in 1859, the returns for Lombardy showing as follows :—

	Lombardy, Annual Crops		Increase
	1848-58	1870-74	Per Cent.
Wheat, bushels . .	4,100,000	7,300,000	80
Maize, ,, . .	6,300,000	12,300,000	95
Rice, ,, . .	1,000,000	4,400,000	340
Potatoes, cwts. . .	220,000	1,120,000	410
Oil, gallons . . .	66,000	138,000	110
Wine, ,, . . .	31,000,000	42,000,000	35

The production of grain and wine was approximately for all Italy as follows :—

Year	Grain, Million Bushels	Wine, Million Gallons
1828	116	...
1840	130	360
1870	203	480
1888	223	715

The detailed official report for 1888 shows as follows :—

	Acres	Tons	Value, £	Cwts. per Acre	Value per Ton, £
Wheat . .	11,010,000	2,530,000	32,100,000	4.6	12.7
Maize . .	4,720,000	1,610,000	15,300,000	6.9	9.5
Oats . . .	1,100,000	340,000	1,900,000	6.2	5.5
Barley . .	860,000	165,000	1,900,000	4.0	11.0
Rye and pulse	2,200,000	370,000	4,800,000	3.3	13.0
Rice . . .	500,000	290,000	5,400,000	11.6	18.6
Chestnuts .	1,050,000	320,000	3,300,000	6.0	10.2
Potatoes . .	370,000	620,000	1,600,000	33.5	2.6
Hemp . .	300,000	65,000	2,900,000	4.3	45.0
Flax . . .	170,000	13,000	800,000	1.5	62.0
Wine . . .	7,700,000	715,000,000g	42,600,000	93g	...
Oil . . .	2,250,000	50,000,000	13,400,000	23g	...
Tobacco . .	9,000	2,000	160,000	4.4	80.0
Silk cocoons .	...	44,000	6,200,000	...	141.0
Oranges . .	...	225,000	3,000,000	...	13.3
Total .	...	...	135,360,000	...	...

The above values are, however, in many cases too high, and such important items as hay, straw, &c., are omitted. The following table is more in harmony with European prices :—

	Tons	£	Sundries	£
Wheat . .	2,530,000	21,500,000	Oranges . .	3,000,000
Maize . .	1,610,000	10,700,000	Vegetables .	22,500,000
Oats . .	340,000	1,900,000	Hemp and flax .	2,800,000
Barley . .	165,000	1,150,000		
Rye, &c. .	370,000	2,600,000	Chestnuts .	800,000
Rice . .	290,000	2,200,000	Tobacco . .	70,000
			Cocoons . .	6,200,000
All grain .	5,305,000	40,050,000	Timber . .	4,000,000
Potatoes .	620,000	1,250,000	Dairy . .	14,400,000
Straw . .	5,000,000	4,000,000	Poultry . .	6,000,000
Hay . .	12,000,000	18,000,000	Meat . . .	18,000,000
Wine . .	...	42,600,000	Foals . . .	3,000,000
Oil . . .	...	13,400,000	Hides, wool, &c.	4,130,000
Principal crops	...	119,300,000	Sundries . .	84,900,000

	£
Agricultural products	153,000,000
Animal products	51,200,000
Total .	204,200,000

The distribution of crops in 1870 was said to be as follows :—

	Grain	Wine	Chestnuts	Hay
Venetia	6	5	...	32
Lombardy	9	5	2	18
Piedmont	16	18	30	20
Tuscany, Romagna, &c. .	21	22	34	30
Naples	32	28	34	...
Sicily	16	22	...	...
Total . .	100	100	100	100

The official returns of live-stock are of recent date, besides which we have the estimates of Schnabel and Malchus for 1828, and of Spallart for 1852 :—

	1828	1852	1874	1882
Horses . .	800,000	800,000	1,070,000	1,120,000
Cattle . .	3,500,000	3,660,000	3,499,000	4,780,000
Sheep . .	6,500,000	7,000,000	6,980,000	8,595,000
Pigs . .	2,500,000	2,000,000	1,550,000	1,160,000
Goats . .	800,000	...	1,690,000	2,020,000

The production of meat at 500 lbs. per carcase of beef, 56 lbs. per sheep, and 100 lbs. per pig, was as follows :—

Year	Meat, Tons	Lbs. per Inhabitant
1828	335,000	... 44
1874	300,000	... 24
1882	360,000	... 28

The value of all kinds of live-stock may be set down approximately thus :—

	Number	Value, £	£ per Head
Horses	1,120,000	23,500,000	21.0
Cattle	4,780,000	47,800,000	10.0
Sheep	8,600,000	6,900,000	0.8
Pigs	1,160,000	2,900,000	2.5
Goats	2,020,000	1,400,000	0.7
Total . . .	...	82,500,000	...

The value of products at different dates was approximately as follows :—

Year	Millions, £ Sterling			Hands	Product per Hand, £
	Agricultural	Pastoral	Total		
1840	92	22	114	3,600,000	32
1874	146	34	180	5,100,000	35
1888	153	51	204	5,400,000	38

The relation between capital and product was approximately as follows :—

Year	Millions, £ Sterling		Ratio to Capital
	Capital	Product	
1840	452	114	25.3
1874	801	180	22.5
1888	1,405	204	14.6

LAND VALUE

According to Dr. Bodio's estimate, the value of land is 34 times the assessed rental ; taking the same ratio for 1863 and 1871, and accepting the Foreign Office reports of 1844, which gave £11 per acre cultivated and £5 for pasture and woodland, the result is as follows :—

Year	Assessed Rental, £		Land Value, Million Sterling
1840	...	...	377
1863	16,000,000	...	544
1871	19,000,000	...	661
1885	34,700,000	...	1,182

The accuracy of Dr. Bodio's estimate for 1885 is borne out by the fact that the price obtained for Church-lands sold by Government in 1870-77 in all parts of Italy gave a medium of £16 per acre, ranging from £8 in Romagna to £36 in Piedmont.

This average of £16 for 70 million acres would show a total value of 1120 millions. See *Lands*.

AGRICULTURAL CAPITAL

Year	Millions, £ Sterling			
	Land	Cattle	Sundries	Total
1840	377	30	45	452
1863	544	45	66	655
1871	661	60	80	801
1885	1,182	83	140	1,405

The increase of capital was as follows :—

Period	Millions, £ Sterling		£ per Annum
1840-63	203	...	8,500,000
1864-71	146	...	18,300,000
1872-85	604	...	43,100,000
46 years	953	...	20,700,000

It may be observed that the assessed rentals of 1863 and 1871 were probably below the reality, in which case the increase of landed values and agricultural capital would be less than appears above.

SPAIN

About 37 per cent. of Spain is cultivated, 26 per cent. being pasture or forest, and 37 per cent. barren mountains. In former times the cultivated area was said to be much greater.

Year	Millions of Acres			Authority
	Cultivated	Uncultivated	Total	
1660	43	78	121	Ozorio
1803	60	61	121	Registro
1828	23	98	121	Malchus
1876	32	89	121	Spallart

The production of grain and wine has been as follows :—

Year	Grain, Million Bushels	Wine, Million Gallons	Authority
1803	98	...	Registro
1828	136	170	Malchus
1876	326	550	N. Spallart *
1888	300	550	Moniteur Agricole

The distribution of area in 1876 and 1888 was variously stated, as follows :—

	Acres	
	1876	1888
Tillage	28,000,000	40,800,000
Vineyards	3,000,000	4,400,000
Olives	1,000,000	1,900,000
Pasture, &c.	28,000,000	24,000,000
Forest	7,000,000	7,000,000
Waste	55,000,000	42,900,000
Total	121,000,000	121,000,000

The following statistics of live-stock are official, except Brachelli's for 1841 :—

	1826	1841	1860	1880
Horses . .	900,000	1,000,000	1,080,000	1,830,000
Cattle. . .	2,950,000	3,000,000	1,870,000	3,090,000
Sheep. . .	13,000,000	14,000,000	17,600,000	22,800,000
Pigs . . .	2,730,000	1,000,000	1,610,000	4,465,000
Goats. . .	5,200,000	2,600,000	3,150,000	4,530,000

In the foregoing table horses include also mules and asses, one mule or four asses being equivalent to a horse ; thus in 1880 the actual numbers were—horses, 670,000 ; mules, 940,000 ; and asses, 890,000.

The production of meat at an average of 450 lbs. per beef carcase, 50 lbs. per sheep, 25 lbs. per goat, and 90 lbs. per pig, was as follows :—

Year	Meat, Tons		Lbs. per Inhabitant
1826	405,000	...	77
1841	300,000	...	55
1860	310,000	...	45
1880	525,000	...	71

* N. Spallart's estimate was as follows :—Wheat, 168 ; barley, 77 ; maize, 36 ; rye, 33 ; oats, 12 million bushels.

The fluctuations of live-stock were doubtless the result of civil wars.

The value of the stock was approximately as follows :—

	No.	Value, £	£ per Head
Horses . . .	1,830,000	36,600,000	20.0
Cattle . . .	3,090,000	30,900,000	10.0
Sheep . . .	22,800,000	18,200,000	0 8
Pigs	4,465,000	6,700,000	1.5
Goats . . .	4,530,000	2,300,000	0.5
Total . .	...	94,700,000	...

The value of products in 1886 was approximately thus :—

	Tons	£	Sundries	£
Wheat . .	3,800,000	30,400,000	Wine . . .	44,000,000
Barley . .	1,700,000	10,200,000	Vegetables, } &c. . . }	9,000,000
Maize . .	1,050,000	6,900,000		
Oats . . .	350,000	2,400,000	Cork oil . .	3,000,000
Rye, &c. .	800,000	5,200,000	Dairy . . .	9,300,000
			Poultry . .	4,500,000
All grain .	7,700,000	55,100,000	Meat.. . .	26,200,000
Straw . .	8,000,000	6,000,000	Foals . . .	3,000,000
Hay . . .	6,000,000	9,000,000	Hides, } wool, &c. }	4,200,000
Principal } crops . }	...	70,100,000	Sundries .	103,200,000

	£
Agricultural products	126,100,000
Animal products	47,200,000
Total	173,300,000

The value of products at various dates was as follows :—

Year	Millions, £ Sterling			Authority
	Agricultural	Pastoral	Total	
1808	54	19	73	Official
1826	56	21	77	Miñano
1832	86	16	102	Argüelles
1836	126	47	173	...

The Census of 1871 showed 2,723,000 persons engaged in agriculture ; the product therefore averages £64 per head.

LAND VALUE

According to the report of the Junta de Medios, the total farming capital in 1832 was 724 millions sterling, between land, cattle, and sundries. The Embassy report of 1869 classified the land under three heads, with the respective rental values. If we capitalise the rental at thirty years, we find the values thus :—

	Acres	Rent, Shillings per Acre	Value, Million £
Irrigated . . .	2,000,000	80	240
Ordinary arable .	30,000,000	12	540
Pasture, &c. . .	34,000,000	4	204
Waste	55,000,000	...	...
Total . .	121,000,000	...	984

AGRICULTURAL CAPITAL
MILLIONS, £ STERLING

	Land	Cattle	Sundries	Total
1832 . .	614	38	72	724
1888 . .	984	95	120	1,199

Spanish statistics are doubtful, being often official ex-aggerations.

PORTUGAL

The estimates of Malchus, Brachelli, Tisserand, and the Statistique Agricole give the following :—

Year	Grain, Million Bushels		Wine, Million Gallons
1827	21	...	75
1850	30	...	...
1868	31	...	132
1886	40	...	125

The cultivated area is less than 5 million acres, that of waste land 17,600,000, the former being barely 21 per cent. of the kingdom.

The crops in 1868 (latest complete returns) were as follows :—

	Acres	Bushels	Value of Crops, £
Wheat	620,000	5,500,000	1,600,000
Maize	750,000	15,400,000	2,800,000
Barley	170,000	2,000,000	260,000
Rye	980,000	7,000,000	770,000
Oats	30,000	500,000	70,000
Rice	10,000	400,000	80,000
All grain . . .	2,560,000	30,800,000	5,580,000
Vines	480,000	132,000,000	8,000,000
Gardens . . .	200,000	...	1,800,000
Olives	100,000	...	500,000
Meadow . . .	500,000	...	2,120,000
Fallow	750,000	...	...
Forest	250,000	...	...
Total	4,840,000	...	18,000,000

Neumann Spallart gives the following for 1877 :—

	Acres	Bushels
Wheat	650,000	8,200,000
Rye	650,000	6,100,000
Maize	1,300,000	20,000,000
Barley, &c.	200,000	2,700,000
Total	2,800,000	37,000,000

The statistics of Portuguese live-stock were as follows :—

	1828	1850	1868	1883	Value in 1883
					£
Horses	...	120,000	130,000	140,000	2,800,000
Cattle	650,000	750,000	520,000	625,000	6,200,000
Sheep	1,200,000	1,980,000	2,420,000	2,980,000	2,400,000
Pigs	700,000	750,000	860,000	970,000	1,500,000
Goats	600,000	1,500,000	...	940,000	400,000
	...	...	...	...	
	...	...	...	...	13,300,000

The production of meat at the same weight of carcase as in Spain was :—

Year	Meat, Tons	Lbs. per Inhab.
1828	70,000	46
1868	77,000	41
1883	95,000	49

The value of products in 1886 was approximately thus :—

	Tons	£	Sundries	£
Wheat	270,000	2,200,000	Cork	600,000
Maize	400,000	2,400,000	Vegetables, &c.	2,200,000
Rye, &c.	380,000	2,400,000		
			Poultry	1,100,000
All grain	1,050,000	7,000,000	Dairy	1,900,000
Hay and straw	2,000,000	3,000,000	Meat	4,700,000
			Hides, &c.	700,000
Wine	...	10,000,000		
			Sundries	11,200,000
Principal crops	...	20,000,000		

	£
Agricultural products	23,000,000
Animal products	8,200,000
Total	31,200,000

According to the Census of 1861, the number of persons engaged was 870,000, of whom 310,000 in pasture. Ratio of product £35 per head.

The landed value is approximately as follows :—

	Area	Value, Million £	Per Acre, £
Cultivated	5,000,000	90	18
Pasture	7,000,000	42	6
Waste	10,450,000	...	...
Total	22,450,000	132	...

Agricultural capital is only about £36 per head of the total population, being made up thus :—

	Millions £
Land	132
Cattle	13
Sundries	16
Total	161

The value of products is 19 per cent. on the capital.

SWEDEN

Agriculture was in its infancy till 1818, when the nobles (whose estates were heavily encumbered) began to sell their lands to the peasants; by the year 1840 they had sold 16 million acres. As a consequence, we find that the cultivated area increased by 140,000 acres per annum between 1812 and 1837, and by 165,000 per annum between the latter year and 1884, as official returns show :—

Year	Acres Cultivated	Million Bushels	
		Grain	Potatoes
1812	1,360,000	1	...
1837	4,830,000	28	16
1859	...	39	21
1876	11,590,000	80	39
1887	12,200,000	106	59

Only 12 per cent. of the kingdom is cultivated, the area in 1886 showing :—

	Acres
Cultivated	12,200,000
Forest	44,900,000
Waste	43,200,000
Total	100,300,000

The principal crops of recent years compare with those of 1837 thus :—

	1837	1880	1886
Wheat, bushels	500,000	3,100,000	3,700,000
Rye, „	4,500,000	18,300,000	19,600,000
Barley, „	3,600,000	14,300,000	15,600,000
Oats, &c., „	5,200,000	54,700,000	63,600,000
Potatoes, „	8,200,000	55,400,000	49,100,000
Total	22,000,000	145,800,000	151,600,000

The production of meat, at 500 lbs. per beef carcase, 56 lbs. per sheep, and 100 lbs. per pig, was as follows :—

Year	Meat, Tons	Lbs. per Inhabitant
1837	106,000	78
1870	120,000	63
1886	140,000	62

The yield of grain is poor. Oats and barley, fourfold; rye, fivefold; and wheat, in good years, sixfold; potatoes give sevenfold.

The value of products in 1886 was as follows :—

	Tons	£	Sundries	£
Wheat	100,000	800,000	Vegetables	2,300,000
Oats	950,000	5,700,000	Timber	8,000,000
Barley	350,000	2,200,000	Poultry	1,200,000
Rye, &c.	750,000	5,000,000	Dairy	7,000,000
			Meat	7,000,000
All grain	2,150,000	13,700,000	Foals	1,200,000
Straw	2,000,000	1,500,000	Tallow	600,000
Hay	2,000,000	3,000,000	Hides, wool, &c.	1,200,000
Potatoes	1,200,000	2,400,000		
Principal crops	...	20,600,000	Sundries	28,500,000

The following are the returns of live-stock :—

	1836	1860	1870	1880	1886	Approximate Value in 1886, £
Horses	385,000	400,000	430,000	460,000	485,000	9,700,000
Cattle	1,660,000	1,920,000	1,970,000	2,230,000	2,380,000	23,800,000
Sheep	1,410,000	1,640,000	1,600,000	1,460,000	1,440,000	1,200,000
Pigs	500,000	460,000	350,000	420,000	550,000	1,100,000
Goats	100,000	130,000	120,000	110,000	90,000	50,000
						35,850,000

Besides the foregoing, there are 220,000 reindeer.

	£
Agricultural products	31,100,000
Pastoral products	18,000,000
Total	49,100,000

The number of hands engaged in agriculture is 853,000, which gives an average product of £57 per head.

LANDED VALUE

Two official valuations exist—that of 1836, amounting to 33 millions sterling, and that of 1880, which reached 240 millions sterling. We can also determine the value in 1818–20, the average price then obtained by the nobles being 18d. per acre—say, £8,000,000 for the whole kingdom.

Year	Agricultural Capital, Millions £			
	Land	Cattle	Sundries	Total
1818 . . .	8	10	2	20
1837 . . .	33	13 .	5	51
1886 . . .	240	36	30	306

The increase of capital averaged £1,600,000 per annum down to 1837, and £5,000,000 per annum since the latter year. The ratio of product to capital is shown approximately thus :—

Year	Capital, Millions £	Product, Millions £			Ratio to Capital
		Agricultural	Pastoral	Total	
1837	51	10	6	16	31.0
1886	306	31	18	49	16.2

NORWAY

Agriculture has not made so much progress as in Sweden. We have no statistics earlier than 1835, since

which date the area under grain and potatoes and the yield have been as follows :—

Year	Acres	Million Bushels
1835	360,000	13
1855	...	31
1865	530,000	32
1875	560,000	36

Not more than 5 per cent. of the country is cultivated, viz. (1880) :—

	Acres
Cultivated	4,060,000
Forest	15,800,000
Waste	58,840,000
Total	78,700,000

The yield per acre has notably improved since 1835, viz. :—

	Bushels per Acre	
	1835	1875
Wheat	13	20
Oats	26	40

Nevertheless the climate is so little suited to cereals that we notice hardly any increase in the quantity produced, except in potatoes, viz. :—

	1855	1865	1875	Acreage in 1875
	Bushels	Bushels	Bushels	
Wheat . .	200,000	270,000	280,000	11,000
Barley . .	3,500,000	3,400,000	4,300,000	138,000
Oats . . .	8,100,000	7,900,000	8,900,000	224,000
Rye, &c. .	3,000,000	2,630,000	3,120,000	99,000
Potatoes .	16,500,000	18,000,000	19,600,000	86,000
Total	31,300,000	32,200,000	36,200,000	558,000

The following are the official returns of live-stock :—

	1835	1845	1855	1865	1875	Approximate Value in 1875, £
Horses	110,000	130,000	150,000	150,000	150,000	3,000,000
Cattle	640,000	840,000	950,000	950,000	1,020,000	10,200,000
Sheep	1,030,000	1,450,000	1,600,000	1,700,000	1,690,000	1,400,000
Pigs	80,000	90,000	110,000	100,000	100,000	200,000
Goats	180,000	290,0000	360,000	290,000	320,000	200,000
Reindeer	80,000	90,000	120,000	100,000	100,000	150,000
Total	...	...	...	...	...	15,150,000

The production of meat at the same weight of carcase as in Sweden was :—

Year	Meat, Tons	Lbs. per Inhabitant
1835 . . .	44,000	80
1855 . . .	64,000	95
1875 . . .	67,000	78

The value of products in 1886 was approximately thus :—

	Tons	£	Sundries	£
Wheat . . .	7,000	60,000	Vegetables .	1,000,000
Barley . . .	100,000	640,000	Timber . .	4,000,000
Oats . . .	150,000	900,000	Dairy . . .	3,000,000
Rye, &c. . .	73,000	500,000	Poultry . .	500,000
			Meat . . .	3,300,000
All grain . .	330,000	2,100,000	Foals . . .	400,000
Potatoes . .	490,000	1,000,000	Hides, &c. .	800,000
Hay and straw	700,000	900,000		
			Sundries . .	13,000,000
Principal crops	...	4,000,000		

	£
Agricultural products . . .	9,000,000
Animal products . . .	8,000,000
Total	17,000,000

The number of hands employed is about 380,000, showing an average of £45 per head.

The assessed rental valuation of land in 1888 was £6,700,000, representing a capital value of about 100 millions sterling, which was probably composed as follows :—

	Acres	Value, £	Per Acre, £
Cultivated . . .	4,060,000	77,000,000	19.0
Forest	15,800,000	23,000,000	1.5
Mountain . . .	58,800,000	...	...
Total . . .	78,660,000	100,000,000	...

Add to the above 15 millions sterling for cattle, and 12 millions for sundries ; making up a total agricultural

capital of 127 millions sterling. The products are a little over 13 per cent. on capital.

DENMARK

Malchus estimated the grain product in 1828 at 40 million bushels; Brachelli in 1850, at 65 millions.

The agricultural area of Denmark and the duchies of Schleswig-Holstein in 1834 was stated thus:—

					Acres
Arable .	.	.	.	.	8,630,000
Meadow	.	.	.	.	605,000
Forest .	.	.	.	.	538,000
Waste, &c. .	.	.	.	.	637,000
	Total	.	.	.	10,410,000

	Acreage			Million Bushels	
	1866	1876	1881	1878	1886
Wheat . . .	120,000	150,000	140,000	5	5
Barley . . .	680,000	760,000	780,000	23	23
Oats . . .	830,000	940,000	990,000	31	33
Rye, &c. . .	750,000	950,000	1,010,000	24	25
Potatoes . .	85,000	100,000	110,000	10	14
Turnips, &c. .	42,000	40,000	85,000	15	29
Garden. . .	...	50,000	60,000	...	...
Fallow . . .	440,000	610,000	640,000	...	...
Grass . . .	2,670,000	3,070,000	3,560,000	...	...
Forest . . .	400,000	400,000	400,000	...	...
Waste . . .	2,553,000	1,500,000	795,000	...	...
Total . .	8,570,000	8,570,000	8,570,000	...	...

From 1866 to 1876 the reclamation of waste lands averaged 100,000 acres yearly, and from 1876 to 1881 no less than 140,000 yearly. Most of it went into meadow and pasture. Wheat averages 28 bushels an acre, and yields ninefold; other grain, eightfold; clover, two tons per acre. Statistics of live-stock (those for 1830 including Schleswig-Holstein) show as follows:—

	1830	1866	1876	1881	Approximate Value in 1881, £
Horses .	550,000	350,000	350,000	350,000	11,000,000
Cattle .	1,610,000	1,190,000	1,350,000	1,470,000	16,100,000
Sheep .	1,900,000	1,880,000	1,720,000	1,550,000	1,500,000
Pigs . .	450,000	380,000	500,000	530,000	1,200,000
					29,800,000

The conquest of Schleswig-Holstein by Germany in 1864 caused a great diminution in the live-stock of Denmark. The production of meat, at 560 lbs. per beef carcase, 56 lbs. per sheep, and 112 lbs. per pig, was:—

Year	Meat, Tons	Lbs. per Inhabitant
1850	76,000	130
1866	92,000	120
1881	108,000	120

Official returns regarding Denmark proper show as follows:—

	Tons	£	Sundries	£
Wheat . . .	140,000	1,200,000	Roots . .	1,100,000
Barley . . .	520,000	3,500,000	Vegetables	1,000,000
Oats . . .	560,000	3,900,000	Timber .	200,000
Rye, &c. . .	600,000	4,000,000	Poultry .	500,000
			Dairy . .	6,400,000
All grain .	1,820,000	12,600,000	Meat . .	5,400,000
Straw . . .	2,000,000	1,800,000	Foals . .	1,100,000
Hay	900,000	1,800,000	Hides, &c.	1,500,000
Potatoes . .	700,000	1,400,000		
			Sundries .	17,200,000
Principal crops	...	17,600,000		

Agricultural products	.	.	.	19,800,000 £
Animal products	.	.	.	15,000,000
				34,800,000

The values, approximately, of products in 1850 compare with those of 1886 thus:—

Year	Millions, £ Sterling		
	Agricultural	Pastoral	Total
1850	13	9	22
1886	20	15	35

Agricultural hands 420,000, showing an average of £84 per head.

LANDED VALUE

The valuation of 1830 for landed estates amounted to £25,600,000. The Embassy report of 1869 gives average prices which would sum up thus:—

	Acre	Per Acre, £	Value, Million £
Arable	2,950,000	35	103
Grass	3,070,000	23	70
Waste	2,550,000	...	...
Total . . .	8,570,000	...	173

At the same valuation per acre as in 1869 the landed value would now stand as follows:—

	Acres	Value, £	Per Acre, £
Arable	3,815,000	133,500,000	35
Grass	3,560,000	81,900,000	23
Forest	400,000	2,000,000	5
Waste	795,000	...	...
Total . . .	8,570,000	217,400,000	...

The Government valuation for 1884 gives real estate 257 millions sterling, but this includes urban house property as well as lands.

Year	Agricultural Capital, Millions £			
	Land	Cattle	Sundries	Total
1840	26	16	4	46
1869	173	19	21	213
1889	217	30	27	274

The product in 1889 was 13 per cent. on capital. The increase of capital was as follows:—

Interval	Millions, £		Per Annum, £
1830-69	167	...	4,200,000
1870-89	61	...	3,050,000

For Tenure, &c., see *Land*.

HOLLAND

Tillage forms a secondary industry in Dutch agriculture. The production of grain, according to Brachelli and others, was as follows:—

Year						Bushels
1828	.	.	.	.	.	16,000,000
1861	.	.	.	.	.	34,000,000
1885	.	.	.	.	.	40,000,000

The reports of 1879 and 1885 compare as follows :—

	Acres				Average for 1871–80	
	1879	1885			Acres	Bushels
Grain	1,570,000	1,460,000	Wheat . . .	210,000	5,200,000
Potatoes	350,000	350,000	Rye	500,000	9,500,000
Beetroot	40,000	60,000	Oats	270,000	10,500,000
Sundries	130,000	280,000	Barley	120,000	5,000,000
Grass	2,940,000	2,950,000	Buckwheat, &c.. . .	280,000	5,800,000
Forest	530,000	560,000			
Waste	2,240,000	2,140,000	Total . .	1,380,000	36,000,000
Total . .	7,800,000	7,800,000			

The statistics of live-stock showed as follows :—

	1840	1860	1870	1884
Horses . .	210,000	240,000	250,000	270,000
Cattle . .	1,050,000	1,250,000	1,410,000	1,480,000
Sheep . .	720,000	870,000	900,000	750,000
Pigs . . .	...	270,000	330,000	430,000
Goats . .	...	110,000	140,000	160,000

The production of meat, at 700 lbs. per beef carcase, 70 lbs. per sheep, and 120 lbs. per pig, was as follows :—

Year				Meat, Tons	Lbs. per Inhabitant
1860	.	.	.	104,000	62
1870	.	.	.	118,000	67
1884	.	.	.	125,000	69

The value of products in Holland in 1886 was approximately as follows :—

	Tons	£	Sundries	£
Wheat . .	140,000	1,200,000	Beetroot .	300,000
Rye . . .	270,000	1,900,000	Vegetables	3,000,000
Oats . . .	250,000	1,700,000	Poultry . .	1,200,000
Barley . .	100,000	700,000	Flax . .	300,000
Buckwheat, &c. .	140,000	900,000	Meat . .	6,200,000
			Tallow . .	400,000
All grain .	900,000	6,400,000	Dairy . .	9,500,000
Potatoes. .	1,600,000	3,200,000	Foals . .	900,000
Straw . .	900,000	900,000	Hides, &c..	1,000,000
Hay . .	3,000,000	6,000,000	Sundries .	22,800,000
Principal crops .	...	16,500,000		

Agricultural products 20,100,000
Animal products. 19,200,000

Products of Holland . . 39,300,000

The value of products in 1850 compares with the above thus :—

Year	Millions, £ Sterling		
	Agricultural	Pastoral	Total
1850	12	10	22
1866	20	19	39

Agricultural hands, 840,000, showing £46 per head.

LAND VALUE

In 1836 the value of the kingdom (excluding waste land) was estimated thus :—

	Acres	Per Acre, £	Value, Million £
Good . . .	2,000,000	54	108
Inferior . .	3,300,000	30	99
Total . .	5,300,000	...	207

The Bulletin Statistique for 1886 states the value at 314 millions sterling, an increase of 107 millions in 50 years :—

Year	Agricultural Capital, Million £			
	Land	Cattle	Sundries	Total
1836 . . .	207	14	24	245
1886 . . .	314	28	38	380

The increase averaged £2,700,000 per annum. The product in 1885 was only 10 per cent. on capital.

BELGIUM

The production of grain and potatoes has been, according to Malchus and the official returns, as follows :—

Year	Acres	Grain, Million Bushels	Potatoes, Tons
1828	...	33	...
1846	...	52	1,800,000
1856	2,840,000	69	1,800,000
1866	2,900,000	70	1,700,000
1880	2,880,000	75	2,800,000
1886	...	74	3,000,000

The distribution of area in Belgium is shown officially as follows :—

	Acreage					Average Product for Years 1871–80	Official Valuation
	1856	1866	1880			Tons	£
Grain	2,480,000	2,480,000	2,390,000	Wheat . . .		430,000	5,400,000
Potatoes . . .	370,000	420,000	490,000	Rye		420,000	3,600,000
Beetroot . . .	20,000	90,000	150,000	Oats		390,000	3,300,000
Flax . . .	80,000	140,000	100,000	Barley		80,000	700,000
Grass	1,170,000	1,340,000	1,420,000	Buckwheat, &c. .		130,000	1,200,000
Sundries . . .	400,000	640,000	420,000				
Forest . . .	2,760,000	1,070,000	1,210,000	All grain . . .		1,450,000	14,200,000
Waste . . .		1,100,000	1,100,000	Potatoes . . .		2,490,000	9,200,000
				Beetroot . . .		2,050,000	1,600,000
Total . .	7,280,000	7,280,000	7,280,000	Hay		5,220,000	10,200,000

The average of ten years to 1880 gave the weight of seed and the crop to the acre as follows :—

	Seed, lbs. per Acre	Crop, lbs. per Acre	Yield to 1 lb. Seed
Wheat	113	1,360	12.0
Rye	107	1,300	12.1
Oats	173	1,520	8.8
Barley . . .	123	1,610	13.1

The acreage of the principal kinds of grain at various dates was as follows :—

	1846	1856	1866	1880
Wheat . .	580,000	660,000	700,000	690,000
Rye . . .	700,000	720,000	710,000	690,000
Oats . . .	500,000	550,000	570,000	620,000
Barley . .	100,000	110,000	110,000	100,000
Total .	1,880,000	2,040,000	2,090,000	2,100,000

Returns of live-stock are as follows :—

	1840	1866	1880	Approximate Value in 1880
				£
Horses .	246,000	280,000	270,000	5,400,000
Cattle . .	910,000	1,240,000	1,380,000	16,600,000
Sheep . .	750,000	600,000	370,000	300,000
Pigs . .	420,000	630,000	650,000	1,300,000
Goats . .	80,000	200,000	250,000	100,000

The production of meat, at 600 lbs. per beef carcase, 70 lbs. per sheep, and 112 lbs. per pig, was :—

Year	Meat, Tons	Lbs. per Inhabitant
1840	77,000	43
1866	106,000	54
1880	110,000	43

The official valuation of products gave the following average for ten years ending 1880 :—

		£
Grain		21,700,000
Green crops		6,400,000
Hay		10,200,000
Sundries		18,200,000
All crops		56,500,000
Cattle products		9,500,000
Total . .		66,000,000

The actual values at present are much lower. The value of all products in 1886 was approximately as follows :—

	Tons	£	Sundries	£
Wheat . .	450,000	4,050,000	Vegetables .	4,500,000
Spelt . .	150,000	1,200,000	Timber . .	800,000
Barley . .	80,000	500,000	Beetroot .	1,600,000
Oats . . .	490,000	3,400,000	Flax . .	2,700,000
Rye, &c. .	450,000	3,050,000	Turnips .	1,800,000
			Poultry . .	1,600,000
All grain .	1,620,000	12,200,000	Dairy . .	5,000,000
Straw . .	1,600,000	1,600,000	Meat . .	5,500,000
Hay . . .	5,000,000	10,000,000	Hides and }	2,000,000
Potatoes .	3,000,000	6,000,000	foals . }	
Principal } crops . }	...	29,800,000	Sundries .	25,500,000

			£
Agricultural products .	.	.	41,200,000
Animal products .	.	.	14,100,000
Total	.	.	55,300,000

The number of adults engaged in 1880 was 980,000. This gives an average of £56 per head.

LANDED VALUE

An official report, dated 1886, gives the rental and the selling price of land (under cultivation) at various dates as follows :—

Year	Rent, Shillings per Acre	Price, £ per Acre
1846 . . .	22.2	42
1856 . . .	26.4	54
1866 . . .	32.5	66
1880 . . .	36.6	67

The value of lands in 1880 was officially set down as follows :—

	Acres	£	£ per Acre
Arable	3,960,000	271,800,000	67
Meadow . . .	970,000	64,500,000	67
Forest	1,210,000	39,200,000	33
Waste	1,140,000	1,800,000	1.5
Total . . .	7,280,000	377,300,000	...

According to the preceding scale the value at various dates was as follows :—

	Acres				Value, Millions, £			
	1846	1856	1866	1880	1846	1856	1866	1880
Cultivated . . .	3,930,000	4,520,000	5,110,000	4,970,000	165	243	337	336
Forest	1,400,000	1,300,000	1,070,000	1,210,000	29	35	35	39
Waste	1,950,000	1,460,000	1,100,000	1,100,000	2	2	2	2
Total	7,280,000	7,280,000	7,280,000	7,280,000	196	280	374	377

Year	Agricultural Capital, Millions, £			
	Land	Cattle	Sundries	Total
1846 . . .	196	16	23	235
1856 . . .	280	18	33	331
1866 . . .	374	20	44	438
1880 . . .	377	24	44	445

The increase of capital was as follows :—

Interval	Millions, £	£ per Annum
1846-56	96	9,600,000
1856-66	107	10,700,000
1866-80	7	500,000
34 years	210	6,200,000

Mr. Block estimated the value of all products in 1850 at 21 millions sterling, being about 7 per cent. on capital. In 1886 it was, as already shown, 55 millions, say 12½ per cent. on capital.

SWITZERLAND

Official returns are as follows :—

	Acres
Tillage	1,450,000
Meadow	1,600,000
Vineyards	70,000
Pasture	1,960,000
Forest	1,760,000
Waste	2,550,000
Total area .	9,390,000

Live-stock, according to Schnabel and later authorities, showed thus :—

	1830	1842	1852	1861	1886
Horses . .	...	...	...	94,000	98,000
Cattle . .	800,000	815,000	950,000	940,000	1,210,000
Sheep . .	500,000	465,000	550,000	430,000	340,000
Pigs . . .	250,000	310,000	280,000	330,000	395,000
Goats . .	...	346,000	...	370,000	420,000

The production of meat is about 82,000 tons yearly. The value of all products in 1886 was approximately thus :—

	Tons	£	Sundries	£
Wheat . . .	55,000	500,000	Vegetables, &c. . .	1,500,000
Barley . . .	45,000	300,000		
Oats . . .	80,000	500,000	Poultry . .	900,000
Rye	210,000	1,300,000	Dairy . .	4,800,000
			Timber . .	1,200,000
All grain . .	390,000	2,600,000	Meat . .	4,100,000
Hay and straw	1,700,000	2,000,000	Foals . .	300,000
Wine . . .	...	1,400,000	Hides, &c. .	500,000
Principal crops	...	6,000,000	Sundries .	13,300,000

	£
Agricultural products . . .	9,000,000
Animal products . . .	10,300,000
Total .	19,300,000

Agricultural capital is approximately as follows :—

	£
Land, cultivated . . .	93,000,000
Forest, &c.	27,000,000
Cattle	10,000,000
Sundries	14,000,000
Total .	144,000,000

The annual product is about 13½ per cent. on capital.

GREECE

The official report for 1885 gives the following :—

	Acres	Sundries	Acres
Grain	2,000,000	Fallow . . .	1,000,000
Olives	325,000	Gardens . . .	40,000
Currants . . .	125,000	Meadows . .	1,000,000
Grapes . . .	250,000	Pasture . . .	5,000,000
Tobacco . . }	250,000	Forest . . .	1,500,000
Cotton . . }		Waste . . .	4,510,000
Principal crops .	2,950,000	Sundries . . .	13,050,000

Live-stock comprised 160,000 horses, 164,000 cattle, 3,460,000 sheep, 45,000 pigs, and 2,510,000 goats, re-

presenting an aggregate value of 24 millions sterling. The value of products in 1885 was approximately as follows :—

	Tons	£	Sundries	£
Wheat . .	190,000	1,600,000	Wine . .	2,500,000
Barley . .	70,000	500,000	Timber . .	800,000
Rye . . .	20,000	130,000	Olives . .	900,000
Maize . .	100,000	670,000	Vegetables .	1,100,000
All grain .	380,000	2,900,000	Dairy and poultry }	1,400,000
Hay and straw . }	1,200,000	2,000,000	Meat . .	2,500,000
Currants .	120,000	3,100,000	Foals, hides &c. . }	1,700,000
Principal crops . }	...	8,000,000	Sundries .	10,900,000

	£
Agricultural products . . .	13,700,000
Animal products . . .	5,200,000
Total . . .	18,900,000

In 1836 the Government sold the productive land at £3 an acre—say, in all, 15 millions sterling. In 1869 the Embassy report makes the arable land worth about £22 an acre, the rest £5, viz. :—

	Acres	Per Acre, £	Value, Millions £
Arable	1,800,000	22	40
Pasture	3,200,000	5	16
Total . .	5,000,000	11	56

The acquisition of Thessaly, in 1881, added 5000 square miles to the area of Greece, and the present landed value, at the prices of the Embassy report of 1869, would be as follows :—

	Acres	Value, £
Cultivated	5,000,000	110,000,000
Pasture	5,000,000	25,000,000
Forest	1,500,000	3,000,000
Waste	4,500,000	...
Total . . .	16,000,000	138,000,000

Agricultural capital is approximately as follows :—

	Millions, £
Land	138
Cattle	24
Sundries	18
Total . . .	180

The value of products is 10.5 per cent. on capital, and about £60 per head of adults engaged in agriculture.

ROUMANIA

The latest returns give the acreage as follows :—

	Acres		Acres
Grain . . .	7,500,000	Pasture . .	6,500,000
Meadow . .	1,400,000	Forest . . .	5,200,000
Vines . . .	300,000	Waste . . .	10,000,000
Cultivated . .	9,200,000	Uncultivated .	21,700,000

Spallart says that the production of grain in 1876 was 20 per cent. greater than ten years before. The weight

of crops is variously estimated from 100 to 110 million bushels. The latest returns of live-stock show 600,000 horses, 2,380,000 cattle, 4,650,000 sheep, 2,310,000 pigs, and 190,000 goats, representing an aggregate value of about 37 millions sterling. The production of meat is approximately as follows:—

	Tons	Value, £
Beef . . .	106,000	4,500,000
Mutton . .	41,000	1,800,000
Pork . . .	100,000	4,500,000
Total . .	247,000	10,800,000

The value of all products may be put down approximately thus:—

	Tons	£	Sundries	£
Wheat . .	700,000	5,000,000	Vegetables	2,500,000
Barley . .	330,000	2,000,000	Meat . .	10,800,000
Maize . .	1,600,000	9,000,000	Dairy . .	4,800,000
Rye, &c. .	220,000	1,300,000	Poultry . .	1,100,000
			Timber . .	900,000
All grain .	2,850,000	17,300,000	Foals . .	1,200,000
Straw . .	3,000,000	1,500,000	Tallow . .	700,000
Hay . . .	1,400,000	2,100,000	Hides, }	1,200,000
Wine, gallons	40,000,000	3,100,000	wool, &c. }	
Principal } crops }	...	24,000,000	Sundries .	23,200,000

	£
Agricultural products . . .	27,400,000
Animal products . . .	19,800,000
Total . . .	47,200,000

The value of the land appears to be approximately as follows:—

	Acres	Value, £
Cultivated	9,200,000	184,000,000
Forest and pasture .	11,700,000	70,000,000
Waste	10,000,000	...
Total . . .	30,900,000	254,000,000

Agricultural capital is approximately as follows:—

	Millions, £ Sterling
Land	254
Cattle	37
Sundries	32
Total . . .	323

The product is equal to 14½ per cent. on capital, and £38 per head of adults engaged.

SERVIA

The total area of this little kingdom is thus distributed:—

	Acres		Acres
Grain	1,160,000	Forest . . .	2,200,000
Vines	440,000	Pasture . . .	6,170,000
Meadow . . .	600,000	Waste . . .	1,430,000
Cultivated . .	2,200,000	Uncultivated .	9,800,000

An official report for 1887, not trustworthy, gives as follows:—

	Acres
Grain and wine	7,030,000
Forest	2,200,000
Waste, &c.	2,770,000
Total . . .	12,000,000

The apparent error in this report is including pasture-land as grain-bearing. The crops have been sometimes said to reach 20 million bushels, but Spallart says 14 millions, and the average weight seems to be 16 millions bushels. The value of product is approximately thus:—

	Tons	£	Sundries	£
Wheat . .	100,000	700,000	Vegetables	1,000,000
Barley . .	70,000	400,000	Timber . .	400,000
Maize . .	130,000	700,000	Poultry . .	400,000
Oats, rye, } &c. . }	100,000	600,000	Dairy . .	2,000,000
			Meat . .	4,000,000
			Foals . .	400,000
All grain .	400,000	2,400,000	Tallow . .	300,000
Straw . .	400,000	200,000	Hides, }	500,000
Hay . . .	600,000	1,000,000	wool, &c. }	
Wine, galls.	16,000,000	1,200,000		
Principal } crops . }	...	4,800,000	Sundries .	9,000,000

	£
Agricultural products	6,200,000
Animal products	7,600,000
Total . .	13,800,000

Statistics of live-stock in 1882 were:—Horses, 160,000; cattle, 960,000; sheep, 3,600,000; pigs, 1,700,000; and goats, 100,000—representing a total value of nearly 16 millions sterling. The production of meat was about 90,000 tons. The value of land was approximately thus:—

	Acres	£
Cultivated	2,200,000	44,000,000
Pasture	6,200,000	37,000,000
Forest	2,200,000	13,000,000
Waste	1,400,000	...
Total . . .	12,000,000	94,000,000

Agricultural capital is approximately as follows:—

	Millions, £
Land	94
Cattle	16
Sundries	12
Total . . .	122

The product is about 11½ per cent. on capital, and £28 per head of adults engaged.

BULGARIA

The area, including Eastern Roumelia, is somewhat larger than that of Ireland, viz. :—

	Acres
Bulgaria proper . . .	16,000,000
Eastern Roumelia . . .	8,300,000
Total .	24,300,000

The extent under grain in Eastern Roumelia is 1,660,000 acres, and in Bulgaria proper close on 4,000,000 acres. The crops of Bulgaria proper average 44 million bushels, of which 23 millions are wheat. The total grain crop of the Principality must be over 60 million bushels, or approximately 1,500,000 tons, representing a value of 10 millions sterling.

TURKEY

Agriculture is very backward, owing to the despotism of the Pashas and the exactions of money-lenders. Every province, meantime, has its own features and modes of

agriculture. If we include the territories taken from Turkey by the Treaty of Berlin in 1878, we find as follows :—

	Acres	Population	Acre per Inhabitant
Bosnia-Herzegovina	15,000,000	1,500,000	10
Bulgaria	24,300,000	3,150,000	8
Turkey proper . .	41,000,000	4,350,000	9½
Turkey in Europe	80,300,000	9,000,000	9

Mr. Spallart compares the average grain crops of 1881–85 with those of 1868 thus :—

	1881–85, Millions of Bushels				1868
	Bosnia	Bulgaria	Eur. Turkey	Total	
Wheat . .	2	23	22	47	39
Maize . .	3	7	8	18	30
Barley . .	2	11	12	25	25
Rye, &c. .	1	3	15	19	13
Total .	8	44	57	109	107

Bosnia and Bulgaria have been already described. One of the most productive provinces in Turkey was Bessarabia, which was transferred to Russia by the Berlin Treaty of 1878 : it is rich in corn and wine. The vineyards often yield per acre 300 gallons of wine, worth £18 ; and the grain farms 60 bushels of maize per acre. The serfs were emancipated in 1870, the Boyars or nobles being compelled to either give the tenant half his farm gratis or sell the whole for 26s. per acre. Four hundred Boyars preferred the former, and let the remainder of their lands at 5s. an acre. In 1874 there were 350,000 small landowners whose farms averaged 30 acres each, maize being the chief product.

Turkey proper is held partly by Pashas, who let the lands in small farms of 20 acres to Murabàs on the "metayer" system, the tenant giving half the crops in lieu of rent ; partly by peasant proprietors in 50-acre farm-lots, viz. :—

	Number of Farms	Acres
Murabàs	650,000	13,000,000
Peasant landowners .	600,000	29,700,000
Total . . .	1,250,000	42,700,000

The price of arable land ranges from £20 to £60 per acre, and it may be rented from 20s. to 40s. per annum. Waste land sells at £3 per acre. Live-stock is supposed to comprise 600,000 horses, 1,000,000 cattle, and 10,000,000 sheep, besides numbers of goats, pigs, and poultry.

Epirus is backward, the labours of the field devolving mostly on women, and large tracts of good land lying waste for want of hands to cultivate it. The country about Adrianople, on the other hand, is progressive, the use of steam-threshers being general. Oxen and buffaloes are employed for ploughing ; wheat and maize are the chief crops. The area under crops is not known ; probably about 8 or 10 million acres. The grain crops may be put down roughly at 80 million bushels.

Asia Minor

This portion of the Turkish Empire is sometimes called Anatolia, with an area of 220,000 square miles or 141 million acres, and a population of about 5,000,000 souls.

About one-third of the area is actually farmed, either as Murabàs on the "metayer" system, or by the tenant proprietors, viz. :—

	Number of Farms	Acres	Average Farm, Acres
Murabàs . .	1,395,000	28,000,000	20
Proprietors . .	1,284,000	22,000,000	18
Total . .	2,679,000	50,000,000	19

Such is the want of roads, that the freight of a ton of grain 100 miles would be £9, or about the value of the grain. Tithes are oppressive, as well as transit custom-dues on products going from one province to another. Most of the lands, moreover, belong to the State or to the Vacouf institutions ; and although the soil is fertile, no progress is made.

Smyrna or Ardin is the best part of Asiatic Turkey, with an area of 35,500 square miles or 22 million acres, and a population of 1,000,000, nine-tenths Moslems. Most of the territory consists of Chiftliks or large estates, worked by the peasants on the Murabá system. Some small proprietors have bought their farms at 40s. per acre, the lowness of price being the result of heavy taxation, viz. :—1st, one-tenth of all crops and fruit to the State ; 2nd, four per mil, equal to one penny yearly for each £ of selling value of land and houses, or about 4 per cent. on the rental value ; 3rd, a charge of 5 per cent. on every transfer ; 4th, a cattle-tax of 32d. per sheep, and 21d. per pig or goat yearly. Land is allowed to lie fallow every third year. The ordinary yield of crops is wheat or barley twelve-fold, beans twenty-fold, maize thirty-fold. Vallonia is an important crop, Smyrna exporting 100,000 tons yearly.

Egypt

The area under tillage has almost trebled in fifty years, the official report published in 1888 containing the following table :—

Year	Acres under Crops	Year	Acres under Crops
1833	1,930,000	1875	4,890,000
1840	4,020,000	1880	4,960,000
1863	4,570,000	1888	5,080,000

A statement of the crops in 1834 was as follows :—18 million bushels grain, 22 million lbs. raw cotton, 5000 tons tobacco, 3000 tons flax, and 1600 tons sugar, representing a total value of £4,000,000 sterling.

When Mehemet Ali was dying, in 1848, he could boast that in his reign Egypt had more than doubled the area under crops. Progress was also made under his grandson, Abbas, and still more under Ismail Pacha, from 1863 to 1879, in which period were made 8400 miles of canals, irrigating 1,370,000 acres, the cultivation of cotton being specially stimulated by high prices consequent on the American war.

The cotton crop is shown for the last sixty-seven years as follows :—

Period	Million lbs. Yearly	Value	Price per Lb.
		£	
1821–30 . . .	14	392,000	6.7
1831–40 . . .	18	677,000	9.0
1841–50 . . .	24	504,000	5.0
1851–60 . . .	51	1,120,000	5.3
1861–70 . . .	127	6,860,000	13.0
1871–80 . . .	237	7,580,000	7.7
1881–87 . . .	288	7,490,000	6.2

The distribution of tillage in 1888 was as follows :—

	Acres	Crop, Tons
Wheat	1,290,000	500,000
Maize	710,000	300,000
Barley	540,000	160,000
Peas, &c.	1,955,000	900,000
All grain	4,495,000	1,860,000
Cotton	900,000	130,000
Clover	980,000	2,000,000
Total . . .	6,375,000	...

Some of the land bears double crops, which accounts for the discrepancy between this and the previous table. There are 3,450,000 date-palms, producing annually 300,000 tons of fruit. There is room for further development, since there are still idle 2,200,000 acres suitable for tillage. More than three-fourths of the lands are State property, the Khedive holding 3,800,000 acres, which he lets to the Fellahs at a yearly rent of 8s. per acre in Upper Egypt and 30s. in the Nile Valley.

A statement of tenure in 1879 was as follows :—

Farmed by	Title	Acres	Tax, £	Shillings per Acre
Gentry . .	Ouchour	1,329,000	470,000	7
Fellahs . .	Karadji	3,514,000	3,850,000	22
Do. . .	Abadieh	620,000	500,000	16
Total .	...	5,463,000	4,828,000	18

An official return of the value of crops in 1884 was :—

	£	Sundries	£
Grain	13,300,000	Clover . . .	2,500,000
Cotton	7,900,000	Dates and sugar	1,700,000
Cotton-seed . .	1,400,000	Lentils, flax, &c.	3,200,000
Principal crops .	22,600,000	Sundries . . .	7,400,000

Making a total of 30 millions sterling. The crop, however, depends so much on the Nile, that a difference

of one foot in flood-level is worth £2,000,000, the average Nile rising 24 feet. In ordinary years the cost of irrigation is 4s. an acre per annum. The agricultural condition of the country is shown thus :—

	Lower Egypt	Upper Egypt	Total
Villages . .	2,359	1,420	3,779
Inhabitants .	3,180,000	2,630,000	5,810,000
Acres cultivated .	2,880,000	2,330,000	5,210,000
Horses and cattle	466,000	284,000	750,000
Sheep and goats	380,000	555,000	935,000
Date-palms .	1,100,000	2,350,000	3,450,000

In Lower Egypt the soil gives four crops in three years ; in Upper Egypt seven crops in six years.

CYPRUS

Area 2,300,000 acres, being 13 acres per inhabitant. The island is held partly by nobles, who have eighty Tchifliks or large estates, the rest being cut up in 70-acre farms belonging to peasant proprietors. The chief products are :—

	Value, £
Grain, 3 million bushels . . .	500,000
Wine, 450,000 gallons . . .	40,000
Oil, 50,000 gallons	18,000
Sundries	82,000
Total	640,000

The farmers have 750,000 sheep, besides cows and horses. There are 600,000 carob or algarroba trees, covering an area of 20,000 acres, yielding 25,000 tons of locust-beans worth £75,000, most of which goes to Scotland to be made into whisky.

ALGERIA

The cultivated portion is about 16 per cent. of the total, viz.:—

	Acres
Under crops	7,720,000
Pasture	4,800,000
Forest and waste	63,920,000
Total	76,440,000

The returns for 1886 were as follows :—

	Acreage			Crop, Tons		
	European	Arab	Total	European	Arab	Total
Wheat	620,000	2,500,000	3,120,000	127,000	505,000	632,000
Barley	300,000	3,300,000	3,600,000	100,000	850,000	950,000
Oats	100,000	...	100,000	50,000	...	50,000
Maize, &c.	40,000	100,000	140,000	13,000	15,000	28,000
All grain . . .	1,060,000	5,900,000	6,960,000	290,000	1,370,000	1,660,000

The European settlers had also 190,000 acres under vines, which produced 36 million gallons of wine in 1886, the yield in 1890 being expected to reach 60 million gallons. The tenure of land in 1886 was as follows :—

Province	Acres held by				
	Arabs	Jews	French	Settlers	Total
Algiers . .	2,900,000	40,000	230,000	170,000	3,340,000
Oran . . .	1,540,000	40,000	160,000	230,000	1,970,000
Constantine	3,570,000	30,000	150,000	100,000	3,850,000
Total .	8,010,000	110,000	540,000	500,000	9,160,000

The returns of live-stock were :—

	Owned by		
	Europeans	Arabs	Total
Horses	51,000	260,000	311,000
Asses	13,000	270,000	283,000
Camels	300	275,500	275,800
Cattle	137,000	1,060,000	1,197,000
Sheep	321,000	9,036,000	9,357,000
Goats	74,000	4,592,000	4,666,000
Pigs	85,000	...	85,000

The value of all live-stock was about 28 millions sterling; the production of meat about 160,000 tons yearly. The grain crop has increased 50 per cent. in the last twenty years. The value of products in 1886 was approximately thus :—

	Tons	£	Sundries	£
Wheat . .	630,000	5,000,000	Meat . . .	6,400,000
Barley, &c. .	1,030,000	6,200,000	Dairy and poultry	2,600,000
Wine . . .	...	2,200,000		
Principal crops	...	13,400,000	Wool, hides, &c.	3,300,000
			Sundries .	12,300,000

UNITED STATES

Tillage was a chief occupation of the first settlers. In 1602 Captain Gosnold grew peas and beans in Massachusetts, and in 1611 wheat was grown in Virginia. The Dutch of Manhattan (New York) sent home some wheat to Holland in 1626. Potatoes, previously unknown in North America, were introduced from England in 1629 and successfully grown in Massachusetts. Stebbins relates that in 1637 there were 100 ploughs at work in Virginia, and 37 in Massachusetts. In 1640 Mr. Endicott of Salem sold 500 fruit-trees for 250 acres of land, and in the preceding year Manhattan apples were sent to Holland. South Carolina exported 700 bushels of potatoes in 1749. New York 70,000 barrels of flour in 1750. The production of grain in the eighteenth century can only be roughly estimated on the basis of population; exact returns begin with the year 1840.

Year	Grain Product, Million of Bushels			Value of Crop, Million £
	Production	Home Consumption	Exported	
1700	5	5	...	1
1750	20	20	...	3
1775	60	60 .	...	8
1790	120	120	...	14
1800	160	160	...	18
1820	343	336	7	34
1830	463	455	8	46
1840	616	601	15	62
1850	867	855	12	97
1860	1,240	1,220	20	173
1870	1,629	1,569	60	198
1880	2,718	2,425	293	276
1889	3,454	...	...	243

The production is at present 52 bushels per inhabitant, against 30 in the year 1800. It forms 33 per cent. of the whole grain-crop of the world, and the ratio per inhabitant is only approached by Denmark, which has 42 bushels per inhabitant.

The various crops since 1840 show as follows :—

Year	Millions of Bushels						Bushels per Inhabitant
	Maize	Oats	Wheat	Barley	Rye, &c.	Total	
1840	378	123	85	4	26	616	36
1850	592	147	101	5	23	868	38
1860	840	173	173	16	38	1,240	40
1870	1,094	248	236	26	25	1,629	42
1880	1,717	418	499	45	39	2,718	54
1889	2,110	750	490	64	40	3,454	53

The production of grain in various parts of the Union was as follows :—

Year	Millions of Bushels				
	New England	Middle States	Southern	Western	Total
1840	22	135	280	179	616
1850	20	170	360	318	868
1860	21	204	412	603	1,240
1870	16	216	301	1,096	1,629
1880	18	233	442	2,025	2,718
1887	20	244	605	1,797	2,666

The ratio of bushels produced per inhabitant was as follows :—

Year	New England	Middle States	Southern	Western	Union
1840	10	27	44	54	36
1850	7	25	43	57	38
1860	7	25	40	62	40
1870	5	22	27	61	42
1880	4	20	29	106	54
1887	5	18	36	78	44

The aggregate of crops of 1887 was 10 per cent. below the average of 1884-88.

The distribution of the various crops in 1887 compares with that of 1850 as follows :—

MILLIONS OF BUSHELS

States	1850				1887			
	Wheat	Maize	Oats, &c.	Total	Wheat	Maize	Oats, &c.	Total
New England	1	11	8	20	1	9	10	20
Middle . .	32	61	77	170	33	103	108	244
Southern . .	19	298	43	360	47	474	84	605
Western . .	49	222	47	318	375	870	552	1,797
Union . . .	101	592	175	868	456	1,456	754	2,666

The progress of grain-growing in twenty years is shown in the Agricultural Report for 1889 as follows :—

	Acreage				Increase of 20 Years	Per Cent.
	1869	1870-79	1880-88	1889		
Wheat	19,180,000	25,190,000	37,280,000	38,120,000	18,940,000	99
Maize	37,100,000	43,740,000	70,540,000	78,320,000	41,220,000	111
Oats	9,460,000	11,080,000	22,000,000	27,460,000	18,000,000	190
Barley . . .	1,030,000	1,530,000	2,480,000	3,000,000	1,970,000	191
Rye	1,660,000	1,310,000	2,120,000	2,360,000	700,000	42
Buckwheat . .	1,030,000	550,000	880,000	910,000	...	...
All grain	69,460,000	83,400,000	135,300,000	150,170,000	80,710,000	116

	Value, £ Sterling				Increase of 20 Years	Per Cent.
	1869	1870–79	1880-88	1889		
Wheat	51,000,000	68,100,000	77,300,000	71,300,000	20,300,000	40
Maize	135,700,000	104,700,000	138,900,000	123,700,000	...	...
Oats	28,500,000	23,100,000	37,600,000	36,100,000	7,600,000	27
Barley	4,900,000	5,200,000	6,600,000	6,600,000	1,700,000	35
Rye	4,600,000	2,700,000	3,300,000	3,500,000	...	...
Buckwheat . . .	3,300,000	1,500,000	1,500,000	1,600,000	...	...
All grain . . .	228,000,000	205,300,000	265,200,000	242,800,000	13,200,000	6

	Yield, Million Bushels				Increase of 20 Years	Per Cent.
	1869	1870–79	1880-88	1889		
Wheat . . .	260	310	450	490	230	88
Maize	870	1,180	1,700	2,110	1,240	142
Oats	290	310	580	750	460	158
Barley . . .	29	34	54	64	35	121
Rye	23	18	25	28	5	22
Buckwheat . .	17	10	11	12	...	...
All grain . . .	1,489	1,862	2,820	3,454	1,965	131

	Average Bushels, per Acre				Pence per Bushel			
	1869	1870-79	1880-88	1889	1869	1870-79	1880-88	1889
Wheat . .	13.5	12.4	12.1	12.9	47	52	41	35
Maize . .	23.6	27.1	24.1	27.0	38	21	20	14
Oats . .	30.4	28.4	26.6	27.4	24	18	15	11
Barley . .	27.9	22.0	21.7	21.3	41	37	29	25
Rye . . .	13.5	14.1	11.9	12.0	48	35	31	29
Buckwheat	16.9	17.7	12.8	13 2	45	36	32	32
All grain .	21.4	22.3	20.9	23.0	36	27	23	17

COTTON PRODUCTION, MILLION LBS.

Year	Production	Home Use	Exported	Value of Crop, Million £
1800	36	16	20	2
1810	115	20	95	5
1820	160	32	128	6
1830	350	52	298	6
1840	878	134	744	15
1850	890	225	665	17
1860	1,880	434	1,446	40
1870	1,540	530	1,010	41
1880	2,593	771	1,822	59
1888	3,440	1,060	2,380	61

The average crop is 190 lbs. ginned cotton per acre. The crop of cotton-seed usually reaches 3,000,000 tons, worth 22s. per ton.

The production of cotton in 1840 and 1886 was as follows :—

	Millions of Lbs.		Ratio	
	1840	1888	1840	1888
Mississippi	193	524	21.9	15.2
Georgia	163	464	18.5	13.5
Louisiana	153	220	17.4	6.4
Alabama	117	457	13.3	13.3
South Carolina . . .	62	267	7.1	7.8
North Carolina	52	177	5.9	5.2
Arkansas, Tennessee, &c.	138	1,331	15.9	38.6
Total . . .	878	3,440	100.0	100.0

TOBACCO PRODUCTION, MILLION LBS.

Year	Produc- tion	Home Use	Export	Value of Crop, £
1800	107	18	89	1,300,000
1810	117	25	92	1,200,000
1820	127	34	93	2,100,000
1830	142	46	96	2,600,000
1840	219	78	141	3,900,000
1850	250	82	168	5,300,900
1860	303	110	193	3,700,000
1870	426	238	188	9,400,000
1880	460	243	217	7,500,000
1888	566	224	342	9,100,000

The production of tobacco in 1840 and 1886 was as follows :—

	Millions of Lbs.		Ratio	
	1840	1886	1840	1886
Virginia	75	94	34.3	18.6
Kentucky	53	194	24.2	36.2
Tennessee	30	32	13.8	6.0
Maryland	25	25	11.4	4.7
North Carolina . .	17	32	7.7	6.0
Other States . . .	19	152	8.6	28.5
Total . . .	219	529	100.0	100.0

The production of butter and cheese in 1850 and 1880 was as follows :—

	Millions of Lbs.				Milk, Million Gallons
	Butter		Cheese		
	1850	1880	1850	1880	1880
New York . .	80	112	50	84	232
Pennsylvania .	40	79	3	10	37
Ohio	34	67	21	22	47
Illinois . . .	13	54	1	10	45
Indiana . . .	13	37	1	4	7
Vermont . . .	12	25	9	15	7
Virginia . . .	11	21	1	1	2
Kentucky . . .	10	18	1	1	3
Iowa	2	55	...	11	16
Michigan . . .	7	39	1	4	8
Wisconsin . .	4	33	...	23	25
Missouri . . .	8	29	...	3	3
Kansas . . .	...	22	...	5	1
Tennessee . .	8	18	...	1	1
Maine	9	14	2	12	4
California . .	...	14	...	26	12
Texas	2	14	...	1	1
Other States . .	60	126	16	39	79
Total . .	313	777	106	272	530

The production of other articles was as follows :—

	1840	1850	1860	1870	1880	1886
Sugar, million lbs. . .	155	248	269	166	246	240
Rice, ,, ,, . .	81	215	187	74	110	...
Butter, ,, ,, . .	...	313	460	514	777	960
Cheese, ,, ,, . .	...	106	104	153	272	380
Wool, ,, ,, . .	36	52	112	162	233	320
Hay, tons . . .	10	14	19	27	35	42
Potatoes, bushels . .	108	104	111	143	169	168

Sugar is grown almost exclusively in Louisiana, rice in South Carolina and Georgia.

The following table shows the area under farms :—

Year	Millions of Acres		
	Improved	Unimproved	Total
1810.	64	100	164
1850.	113	180	293
1870.	190	220	410
1880.	285	249	534
1888.	345	302	647

The above figures are official except as regards 1888 : this last is an estimate, adding 21 per cent. to the figures for 1880, as the agricultural report shows similar rise in the area under crops, namely, from 165 million acres in 1880 to 200 millions in 1886 (see *Lands*).

The distribution of the wheat, maize, hay, and potato crops in 1888–89 was as follows :—

	Acres			
	Wheat	Maize	Hay	Potatoes
Illinois . .	2,380,000	8,020,000	3,300,000	140,000
Iowa . . .	1,605,000	8,860,000	3,640,000	190,000
Indiana . .	2,800,000	3,680,000	1,450,000	80,000
Kansas . .	1,680,000	6,810,000	1,550,000	140,000
Missouri . .	1,590,000	6,800,000	1,500,000	90,000
Ohio . . .	2,520,000	3,005,000	2,570,000	150,000
Michigan .	1,610,000	970,000	1,400,000	120,000
Wisconsin .	1,190,000	1,080,000	1,730,000	140,000
Pennsylvania	1,350,000	1,380,000	2,720,000	205,000
Tennessee .	1,210,000	3,670,000	...	40,000
California .	3,290,000	160,000	1,180,000	60,000
Kentucky .	980,000	2,840,000	...	50,000
New York .	650,000	700,000	4,930,000	370,000
Texas . .	600,000	4,570,000	150,000	...
Various . .	14,665,000	25,775,000	12,470,000	755,000
Total . .	38,120,000	78,320,000	38,590,000	2,530,000

The increase of farming area between 1850 and 1880 was as follows :—

States	Millions of Acres		Rate of Increase, per Cent.
	1850	1880	
New England .	18	22	22
Middle . . .	43	53	23
Southern . . .	165	227	38
Western . . .	67	232	248
Union	293	534	82

The area of improved lands increased in the same interval thus :—

States	Millions of Acres		Rate of Increase, per Cent.
	1850	1880	
New England .	11	13	28
Middle	26	37	42
Southern . . .	49	82	67
Western . . .	27	153	467
Union	113	285	152

The acreage, product, and value of the principal crops in 1889 were as follows :—

	Acres	Tons	Value, £	Value per Ton, £	Product per Acre, £
Wheat .	38,120,000	13,200,000	71,300,000	5.40	1.87
Maize . .	78,320,000	52,700,000	123,700,000	2.35	1.58
Oats . .	27,460,000	10,700,000	36,100,000	3.37	1.31
Barley .	3,000,000	1,400,000	6,600,000	4.72	2.20
Rye . .	2,360,000	700,000	3,500,000	5.00	1.50
Buckwheat	910,000	250,000	1,600,000	6.40	1.76
All grain .	150,170,000	78,950,000	242,800,000	3.07	1.62
Potatoes .	2,530,000	5,060,000	17,000,000	3.35	6.70
Hay . .	38,590,000	46,600,000	85,000,000	1.82	2.22
Cotton .	19,060,000	1,540,000	60,800,000	39.50	3.20
Tobacco .	750,000	250,000	9,100,000	36.40	12.10
Total .	211,100,000	...	414,700,000	...	1.97

The acreage of the principal crops at various dates was approximately as follows :—

	Acres				
	1850	1860	1870	1880	1889
Wheat	8,000,000	14,500,000	18,990,000	37,990,000	38,120,000
Maize	21,000,000	30,500,000	38,640,000	62,320,000	78,330,000
Oats	5,200,000	6,200,000	8,790,000	16,190,000	27,460,000
Barley	200,000	600,000	1,110,000	1,840,000	3,000,000
Rye, &c.	1,800,000	2,500,000	1,720,000	2,590,000	3,280,000
All grain	36,200,000	54,300,000	69,250,000	120,930,000	150,190,000
Potatoes	1,200,000	1,300,000	1,700,000	1,840,000	2,530,000
Cotton	6,000,000	12,000,000	10,200,000	15,950,000	19,060,000
Tobacco	360,000	430,000	550,000	610,000	750,000
Sugar	250,000	270,000	170,000	230,000	230,000
Rice	330,000	290,000	110,000	170,000	170,000
Meadow	10,000,000	13,000,000	20,000,000	25,860,000	38,590,000
Total . .	54,340,000	81,590,000	101,980,000	165,590,000	211,520,000

There are no returns as to rice and sugar in 1889, but they are doubtless the same as in 1880. The maize crop covers an area as large as Great Britain and Ireland, and the total acreage under grain exceeds the dimensions of the German Empire. The cotton covers as much land as the kingdoms of Holland and Belgium in the aggregate.

The area under hay is as large as England. The dimensions of the United States may be briefly expressed thus :—

	Millions of Acres	Ratio
Under crops	212	9.2
Under pasture. . . .	447	19.5
Under forest	176	7.6
Unsettled lands . . .	1,456	63.7
Total . .	2,291	100.0

The following statistics are official :—

Cattle were first introduced into Virginia in 1609, and into New England in 1624. They increased so rapidly that in 1639 the number in the colonies was estimated at 30,000. Dairy-farming prospered in the eighteenth century, one farmer of Rhode Island in 1750 counting 100 milch-cows, and another in the same year selling six tons of cheese.

Nevertheless cattle-farming at first contended with difficulties. It is recorded that the first hogs, goats, and sheep introduced were killed and eaten by the colonists for want of food. A second supply was brought from the West Indies, and it was made in Virginia punishable with death to kill any of these animals. The records of New York show that in 1627 the price of a cow was £30, of a yoke of oxen £40; those of Philadelphia, that the city market consumed twenty head of horned cattle weekly, besides sheep and hogs. Sheep were found to thrive in Virginia, but no use was made of the wool ; the sheep were shorn to keep them cool.

	1810	1840	1850	1860	1870	1880	1890
Horses	300,000	4,300,000	4,900,000	6,200,000	7,100,000	10,400,000	14,200,000
Mules	...	...	..	1,200,000	1,100,000	1,800,000	2,300,000
Cattle	600,000	14,900,000	17,800,000	25,600,000	23,800,000	35,900,000	52,800,000
Sheep	600,000	19,300,000	21,700,000	22,500,000	28,500,000	35,200,000	44,300,000
Pigs	...	26,300,000	30,350,000	33,500,000	25,100,000	47,700,000	51,600,000

Meat supply may be taken at 500 lbs. per beef carcase, 50 lbs. per sheep, and 110 lbs. per pig. Tallow is as 14 to 100 lbs. of beef or mutton, and lard 20 to 100 lbs. of pig's meat.

The values of cattle in 1870 and 1890 were as follows :—

	1870			1890		
	Number	Value, £	Per Head, £	Number	Value, £	Per Head, £
Horses	8,250,000	121,000,000	14.9	14,210,000	201,900,000	14.2
Mules	1,180,000	23,400,000	20.0	2,330,000	38,100,000	16.3
Milch-cows	10,100,000	71,000,000	7.0	15,950,000	73,400,000	4.6
Oxen	15,400,000	62,000,000	4.0	36,850,000	116,600,000	3.2
Sheep	40,850,000	16,800,000	0 4	44,340,000	20,900,000	0.5
Swine	26,750,000	34,000,000	1.3	51,600,000	50,700,000	1.0
Total . .	...	328,200,000	...	...	501,600,000	...

The distribution of live-stock in the great divisions of the Union in 1890 was as follows :—

States	Number					Value, £ Sterling
	Horses	Mules	Cattle	Sheep	Pigs	
New England . . .	360,000	...	1,502,000	1,220,000	350,000	16,600,000
Middle	1,680,000	60,000	5,170,000	3,280,000	2,960,000	68,000,000
South	1,730,000	1,200,000	6,980,000	3,440,000	13,160,000	77,400,000
West	10,440,000	1,070,000	39,148,000	36,400,000	35,160,000	339,100,000
Total . . .	14,210,000	2,330,000	52,800,000	44,340,000	51,600,000	501,100,000

The average value in dollars was as follows :—

States	Horses	Mules	Cows	Oxen	Sheep	Pigs
New England	94	...	28	24	3.0	9.0
Middle . .	91	102	28	25	3.4	6.5
South . . .	71	85	18	12	2.0	3.5
West . . .	64	71	20	15	2.3	5.0
The Union .	68	78	22	16	2.3	4.8

These values, as shown above, are much lower than prevailed in 1870, which in the foregoing table are computed in gold, after allowing 13 per cent. discount on greenbacks. If prices had not fallen, the live-stock of 1890 would represent a total value of 591 millions £ sterling.

Although the prices in the Western States are lower than in other parts of the Union, the wealth which they possess in cattle is two-thirds of the total, amounting to 339 millions sterling. This sum far exceeds the value of live-stock in any European country except Russia, and is five times as great as that of the cattle of all kinds in Australasia. The increase numerically of stock in the Western States has been as follows :—

	1860	1880	1890
Horses	3,220,000	7,030,000	10,440,000
Cattle	12,900,000	22,700,000	39,148,000
Sheep	11,150,000	25,200,000	36,400,000
Pigs	15,200,000	32,050,000	35,160,000

The States richest in live-stock were as follows :—

NUMBER

	Horses and Mules	Milch-Cows	Oxen	Sheep	Pigs	Value, £ Sterling
Iowa	1,140,000	1,330,000	2,580,000	480,000	5,810,000	39,900,000
Illinois	1,230,000	1,070,000	1,710,000	690,000	5,430,000	37,400,000
Texas	1,560,000	840,000	7,170,000	4,750,000	2,320,000	30,400,000
New York	680,000	1,550,000	780,000	1,550,000	690,000	29,300,000
Ohio	790,000	790,000	990,000	3,940,000	2,610,000	27,600,000
Missouri	1,020,000	770,000	1,520,000	1,200,000	5,100,000	25,600,000
Pennsylvania . . .	630,000	940,000	850,000	950,000	1,190,000	24,300,000
Kansas	820,000	750,000	1,830,000	440,000	2,730,000	23,700,000
Indiana	720,000	600,000	960,000	1,280,000	2,850,000	22,300,000
Nebraska	590,000	420,000	1,310,000	240,000	2,310,000	17,900,000
Michigan	480,000	450,000	550,000	2,240,000	980,000	16,000,000
Wisconsin	440,000	670,000	810,000	810,000	1,090,000	15,000,000
Kentucky	550,000	320,000	520,000	810,000	2,260,000	13,900,000
Tennessee	530,000	380,000	480,000	510,000	2,240,000	12,300,000
California	420,000	270,000	700,000	4,040,000	650,000	11,900,000
Minnesota	410,000	490,000	620,000	330,000	530,000	11,700,000
Dakota	310,000	250,000	820,000	270,000	480,000	8,900,000
Arkansas	320,000	330,000	590,000	270,000	1,660,000	7,100,000
Colorado	150,000	70,000	1,050,000	1,780,000	30,000	6,600,000
Various	3,750,000	3,660,000	11,010,000	17,760,000	10,640,000	119,300,000
Total	16,540,000	15,950,000	36,850,000	44,340,000	51,600,000	501,100,000

PRODUCT OF MEAT AND TALLOW

Year	Tons		Value, Million £ Sterling			Exported Meat, Tons
	Meat	Tallow, &c.	Meat	Tallow	Total	
1840	2,120,000	370,000	23	6	29	30,000
1850	2,460,000	440,000	26	8	34	75,000
1860	2,970,000	530,000	52	16	68	40,000
1870	2,540,000	460,000	68	14	82	46,000
1880	4,240,000	760,000	99	15	114	550,000
1886	4,750,000	880,000	140	16	156	380,000

The value of all agricultural products since 1840 is shown as follows :—

	Million £ Sterling					
	1840	1850	1860	1870	1880	1886
Grain	62	97	173	194	276	243
Cotton	15	18	40	41	59	53
Hay	20	29	33	40	62	74
Potatoes	8	9	10	12	14	16
Tobacco	4	5	4	9	8	8
Vegetables and fruit .	16	22	29	36	47	57
Meat and tallow . .	29	34	68	82	114	156
Dairy products . . .	14	17	34	41	57	78
Eggs and poultry . .	7	8	17	20	29	39
Wool	2	3	5	8	12	16
Hides, &c.	7	8	16	19	25	36
Total . . .	184	250	429	502	703	776
Official value .	129	208	398	435	461	776

The difference between my statement of values and the official tables (excepting 1886) can only be explained by supposing that meat, dairy products, poultry, vegetables, &c., were omitted by Census Commissioners. On the other hand, the Commissioner for Agriculture in 1886 has omitted nothing, and I adopt his figures in every item. There is no allowance for forestry, because the Americans do not regard it as an agricultural pursuit.

According to the Census of 1880 it appears that 76 per cent. of all farming hands were males between 16 and 60

years of age. If we suppose the same ratio for previous dates, we find the product per male adult has been as follows :—

Year	Agricultural Hands	Male Adults	Product, Million £	Product per Male Adult, £
1840	2,550,000	1,935,000	184	95
1850	3,311,000	2,515,000	250	99
1860	4,342,000	3,305,000	429	130
1870	5,923,000	4,500,000	502	111
1880	7,671,000	5,890,000	703	119
1886	9,000,000	6,840,000	776	113

The number of agricultural hands in the above table is based on the Census returns for each date and the Commissioner's estimate in his agricultural report for 1886 ; but as the Census returns for 1840-60 do not include slaves, I have added for those years 50 per cent. of the adult slaves. It will be seen that the highest product per head was in 1860, although improved machinery has rendered farm labour much more productive in later years. The explanation is that wheat, for example, has fallen 60 cents a bushel, and maize in the same ratio. If prices had remained the same, the average product per head in 1886 would have been £180.

It is not possible to ascertain how the 9,000,000 hands in 1886 were distributed, but if it were in the same ratio as in 1880, the agricultural power of the great divisions of the country would be thus :—

States	Agricultural Hands	Male Adults	Product, Millions £	Product per Male Adult, £
New England .	351,000	267,000	35	130
Middle . . .	981,000	745,000	123	164
Southern . .	4,220,000	3,200,000	206	64
Western . .	3,448,000	2,628,000	412	160
Union . .	9,000,000	6,840,000	776	113

In Massachusetts, according to the Agricultural Report for 1888, the gross product of land per cultivated acre was, in English money, as follows :—

Grain . . £5	Onions . . £29	Tobacco . . £37
Potatoes . 11	Cabbage . 36	Strawberries . 42

The value of products consumed at home and exported were :—

Year	Millions, £ Sterling			Value Home Consumption £ per Inhab.
	Home Consumption	Exported	Total	
1840	167	17	184	10
1850	224	26	250	10
1860	367	62	429	12
1870	420	82	502	11
1880	561	142	703	11
1886	675	101	776	13

The principal States in order of production in 1886 were :—

States	Value of Product, Million £ Sterling				Ratio	
	In 1886			Nominal, 1880	1880	1886
	Agricultural	Pastoral	Total			
New York .	28	31	59	37	8.0	7.6
Illinois . .	36	22	58	42	9.1	7.5
Iowa . .	30	22	52	28	6.1	6.8
Ohio . . .	27	23	50	33	7.2	6.4
Pennsylvania.	24	23	47	27	5.9	6.0
Indiana . .	24	17	41	24	5.3	5.2
Texas . . .	27	12	39	13	2.8	5.0
Missouri . .	19	14	33	20	4.4	4.2
Kansas . .	15	13	28	11	2.4	3.6
Michigan . .	14	13	27	19	4.2	3.5
Wisconsin .	14	11	25	15	3.2	3.2
Kentucky . .	15	7	22	13	2.8	2.7
California . .	13	7	20	13	2.8	2.6
Tennessee .	14	6	20	13	2.8	2.6
Other States .	167	88	255	153	33.0	32.9
Total .	467	309	776	461	100.0	100.0

In the above table for 1886 the agricultural values for each State are as set down in the Agricultural Report with 15 per cent. added for unclassified articles, the total, 467 millions sterling, being as given in the report. The pastoral products for each State are based on a medium of the value of dairy products (1880) and the value of cattle (1886).

The values, according to the great divisions of the country, were :—

States	Million £ Sterling (1886)				Ratio	
	Agricultural	Pastoral	Total	Nominal, 1880	1880	1886
New England	18	17	35	23	5.0	4.5
Middle. . .	62	61	123	77	16.5	15.7
Southern . .	150	56	206	131	28.5	26.5
Western . .	237	175	412	230	50.0	53.3
Union .	467	309	776	461	100.0	100.0

The product compares with the area of improved lands (1880) thus :—

States	Acres Improved	Product, £	Shillings per Acre
New England .	13,000,000	35,000,000	54
Middle. . . .	37,000,000	123,000,000	66
Southern . . .	82,000,000	206,000,000	50
Western . . .	153,000,000	412,000,000	54
Union . .	285,000,000	776,000,000	54

Year	Agricultural Capital, Million £ Sterling				£ per Inhabitant
	Land	Cattle	Sundries	Total	
1790	96	4	24	124	31
1810	200	10	40	250	47
1840	400	96	100	596	35
1850	662	114	161	937	41
1860	1,382	226	237	1,845	58
1870	1,673	274	294	2,241	58
1880	2,116	340	518	2,974	60
1887	2,560	501	635	3,696	60

The above figures are official except as regards 1810 and 1840, also excepting the value of land in 1887, which is put down at 21 per cent. over 1880, because the area of crops is shown by the Commissioner to have risen 21 per cent. between 1880 and 1886.

The value of farms and cattle (without sundries), according to Census reports, was :—

Year	Million, £ Sterling					£ per Inhabitant				
	New England	Middle	Southern	Western	Union	New England	Middle	Southern	Western	Union
1850	88	276	245	167	776	32	42	30	30	35
1860	113	423	538	534	1,608	36	51	52	55	52
1870	124	570	318	935	1,947	35	58	28	68	50
1880	136	560	426	1,334	2,456	34	44	28	70	49

The increase of agricultural capital was as follows :—

Period	Increase, Million £	£ per Annum	Mean Number of Agricultural Male Adults	Increase per Head, £	Annual Increase per Head, £
1841–60	1,249	62,500,000	2,530,000	500	25
1861–70	396	39,600,000	3,880,000	102	10
1871–87	1,455	85,600,000	5,710,000	255	15
47 years	3,100	65,700,000	4,040,000	775	16

It appears from the foregoing statement that the individual gains of those engaged in agriculture were greatest in the period from 1841 to 1860, averaging £25 a year; the war which ensued in 1861 had a depressing effect, the average accumulation falling to £10 a year in the decade ending 1870, but since the latter year there has been a great recovery, the average reaching £15 per head per annum. This was not the annual average of earnings, but of savings, a result unexampled elsewhere.

CANADA

The area in acres is as follows :—

Province	Population	Acres	Acres per Inhabitant
Quebec . . .	1,360,000	121,200,000	90
Ontario . .	1,920,000	117,200,000	60
Nova Scotia . .	440,000	13,400,000	30
New Brunswick	320,000	17,300,000	54
Prince Edward Island	110,000	1,300,000	12
Manitoba . . .	65,000	38,400,000	580
British Columbia .	50,000	217,600,000	4,350
North-West Territory	55,000	1,696,000,000	30,600
Total . .	4,320,000	2,222,400,000	510

The above was the population in 1881, but it is now estimated at 5,200,000, showing an average of 430 acres per inhabitant.

Tillage statistics for 1887 were as follows :—

ACREAGE

	Wheat	Barley	Oats	Maize	Potatoes	Total
Ontario	1,380,000	770,000	1,680,000	160,000	140,000	4,130,000
Quebec and Coast . .	380,000	90,000	800,000	20,000	280,000	1,570,000
Manitoba, &c. . . .	870,000	100,000	260,000	...	10,000	1,240,000
Total . . .	2,630,000	960,000	2,740,000	180,000	430,000	6,940,000

CROP, TONS

	Wheat	Barley	Oats	Maize	Potatoes	Total
Ontario	550,000	400,000	800,000	220,000	260,000	2,230,000
Quebec and Coast . .	110,000	50,000	400,000	25,000	900,000	1,485,000
Manitoba, &c. . . .	330,000	50,000	120,000	...	60,000	560,000
Total . . .	990,000	500,000	1,320,000	245,000	1,220,000	4,275,000

The above figures for Quebec and Coast Provinces are estimates based on the crops of 1881.
The statistics of live-stock at various dates were —

	1834	1861	1871	1881	1888
Horses	192,000	710,000	860,000	1,070,000	1,100,000
Cattle	885,000	2,320,000	2,690,000	3,510,000	3,790,000
Sheep	1,320,000	2,550,000	3,300,000	3,050,000	2,602,000
Pigs	...	1,250,000	1,410,000	1,210,000	1,205,000
Total value, £ . .	...	24,000,000	33,000,000	...	44,300,000

The grain-crops of the Dominion, measured in bushels, were as follows :—

	1871	1881	1884
Wheat	17,000,000	30,000,000	42,000,000
Oats	46,000,000	64,000,000	88,000,000
Barley	12,000,000	15,000,000	22,000,000
Maize	4,000,000	9,000,000	14,000,000
Rye, &c.	5,000,000	6,000,000	6,000,000
Total . . .	84,000,000	124,000,000	172,000,000

In 1852 the total grain crop was 45 million bushels, and potatoes 6 million bushels.
The value of products in 1887 was approximately :—

	Tons	£	Sundries	£
Wheat . .	990,000	6,400,000	Timber . .	8,200,000
Oats . . .	1,320,000	5,300,000	Vegetables	2,500,000
Barley . .	500,000	2,500,000	Poultry . .	2,000,000
Maize . .	245,000	1,000,000	Dairy . .	7,500,000
			Meat . .	7,800,000
All grain .	3,055,000	15,200,000	Foals . .	1,100,000
Straw . .	3,000,000	1,500,000	Tallow . .	1,200,000
Hay . . .	4,000,000	6,000,000	Hides, }	
Potatoes .	1,200,000	1,800,000	wool,&c. }	1,300,000
Principal } crops . }	...	24,500,000	Sundries .	31,600,00

	£
Agricultural products . . .	35,200,000
Animal products . . .	20,900,000
Total . . .	56,100,000

Ontario has 48 per cent. of the cattle, 48 per cent. of the area (of Canada proper), and produces 65 per cent. of the grain. It may be said to represent 60 per cent. of the agricultural value of the Dominion. Its farms in 1887 covered 11,100,000 acres of cleared land, of which 7,430,000 were under crops. The official valuation for 1887 is as follows, and enables us to give an estimate for the rest of the Dominion :—

	Ontario	Quebec and Other Provinces	All Canada
	£	£	£
Land . . .	130,870,000	87,230,000	218,100,000
Buildings . .	38,510,000	25,690,000	64,200,000
Cattle . . .	21,700,000	22,600,000	44,300,000
Implements .	9,320,000	6,180,000	15,500,000
Total	200,400,000	141,700,000	342,100,000

The official valuation of all land occupied as farms in Canada in 1861 amounted to 102 millions sterling. The agricultural capital was approximately as follows :—

	Millions, £ Sterling	
	1861	1887
Farms	102	282
Cattle	24	44
Sundries	14	36
Total	140	362

This shows an increase of 222 millions sterling in 26 years, equal to £8,500,000 per annum, or one-tenth of the annual average in the United States from 1871 to 1887, the ratio of population being likewise about one-tenth. The relation between agricultural capital and product in Canada in 1861 and 1887 was as follows :—

Year	Millions, £		Ratio to Capital
	Capital	Product	
1861	140	21	15.0
1887	362	56	15.4

In the products of Canada the preceding table includes timber, a considerable item, but the United States does not include it as an agricultural product.

NEWFOUNDLAND

There are 47,000 acres under potatoes, turnips, &c. The live-stock consists of 5000 horses, 20,000 cows, 40,000 sheep, and 20,000 pigs.

MEXICO

The Republic has the following area :—

		Acres
Arable		34,500,000
Pasture		298,000,000
Mountain and forest . . .		129,500,000
Total		462,000,000

The crops in 1888 were as follows :—

	Tons	Value, £	Sundries	£
Maize . .	3,200,000	16,000,000	Cotton . .	1,600,000
Barley . .	150,000	900,000	Sugar . .	1,300,000
Wheat .	280,000	1,800,000	Coffee . .	500,000
Beans . .	200,000	1,000,000	Tobacco, &c.	900,000
Grain . .	3,830,000	19,700,000	Sundries .	4,300,000

The live-stock is supposed to number 2,000,000 horses, 2,000,000 sheep, 5,000,000 goats, and 3,000,000 cattle. There are 20,570 cattle farms, valued at 103 millions £ sterling.

CENTRAL AMERICA

The five little Republics have the following area :—

	Acres	Population	Acres per Inhabitant
Costa Rica . .	12,800,000	200,000	64
Guatemala . .	30,300,000	1,400,000	21
Honduras . . .	30,100,000	430,000	70
Nicaragua . .	31,700,000	400,000	80
Salvador . . .	4,800,000	650,000	7
Total . . .	109,700,000	3,080,000	36

Guatemala is the most important of these Republics. The products and live-stock are approximately as follows :—

	Crops, Tons			Stock, Number	
	Guatemala	Five Republics		Guatemala	Five Republics
Coffee .	30,000	50,000	Horses .	150,000	250,000
Sugar .	25,000	30,000	Cows .	490,000	1,200,000
Maize .	90,000	150,000	Sheep .	460,000	700,000
Wheat .	20,000	30,000	Pigs .	190,000	300,000

The value of live-stock in Guatemala is £3,600,000, and in all five Republics about £7,000,000. Costa Rica crops are valued at £2,400,000. Those of the five Republics may reach £12,000,000. The value of coffee exported is £2,400,000, say 40,000 tons.

VENEZUELA

The area of the Republic is as follows :—

	Acres		
	Public Lands	Private	Total
Agricultural . .	56,500,000	30,900,000	87,400,000
Pastoral . . .	37,900,000	63,400,000	101,300,000
Forest	196,400,000	3,100,000	199,500,000
Total . .	290,800,000	97,400,000	388,200,000

The only crop worth notice is coffee, say 60,000 tons, of which two-thirds are exported, to the value of £2,400,000. The live-stock in 1888 was as follows :—

Cattle	8,480,000	Pigs	1,930,000
Sheep and goats	5,730,000	Horses	750,000

The last item includes 1,160,000 mules and asses, counting two mules or four asses as one horse.

COLUMBIA

Formerly known as New Granada, has an area of 320 million acres, or 82 acres per inhabitant. Some coffee is grown.

The live-stock in 1883 was as follows :—

Cattle	950,000	Horses	140,000
Sheep	40,000	Mules and asses .	110,000
Goats	610,000	Pigs	340,000

The only agricultural product exported is coffee, say 3000 tons, valued at £180,000.

ECUADOR

The Republic has an area of 77 million acres, but the extent under cultivation is trifling. Agricultural exports are as follows :—

	Tons		Value, £
Cocoa . . .	10,000	...	700,000
Coffee . . .	10,000	...	600,000

Besides a small quantity of indiarubber and chinchona. No statistics of cattle.

PERU

The Republic has an area of 295 million acres, or 112 per inhabitant. There are no agricultural statistics. The only agricultural exports are :—

	Tons	Value, £
Sugar	20,000	360,000
Wool	3,000	220,000
Cotton	4,000	200,000

This shows how backward is the condition of the country.

BOLIVIA

Area 540 million acres, of which perhaps one million acres are under cultivation. Among agricultural products are chinchona and coca ; the latter is a famous drug for enabling travellers to suffer hunger and hardships in so desolate a region. The crop of coca is valued at £360,000. There are 5,000,000 chinchona trees, and the crop of bark averages 90 tons.

CHILE

In 1882 there were 7,010,000 acres under crops, of which 1,100,000 were irrigated. The area of the Republic is 170 million acres, the acreage under crops being only 4 per cent. of the total.

The production of grain has been almost stationary for 30 years, averaging 450,000 tons of wheat and 150,000 of other grain, mostly barley and maize. About two-thirds of the wheat is required for home consumption, and a balance of 150,000 tons is exported. The official statistics of stock are : horses, 450,000 ; cattle, 1,530,000 ; sheep, 2,500,000, representing a value of £7,800,000 sterling.

Some superior wines are grown, the vineyards counting 86 million vines in 1882, and producing 14 million gallons of wine. The official report gives the following :—

	£
Agricultural products . . .	6,200,000
Animal products . . .	3,600,000
Total	9,800,000

This is, however, much below the reality, which may be estimated thus :—

	Tons	£	Sundries	£
Wheat . .	450,000	3,200,000	Vegetables .	1,500,000
Barley, &c.	150,000	900,000	Dairy and } poultry }	2,800,000
Hay and } straw . }	1,000,000	2,000,000	Meat. . .	2,600,000
Wine, galls.	14,000,000	1,400,000	Hides, wool } &c. . }	900,000
Principal } crops . }	...	7,500,000	Sundries .	7,800,000

Agricultural products . . . 9,000,000
Animal products 6,300,000

Total 15,300,000

The value of lands under farming was stated in 1882 to be £50,200,000. The total agricultural capital is therefore thus :—

	£
Land	50,200,000
Cattle	7,800,000
Sundries	6,400,000
Total	64,400,000

The product is equal to 24 per cent. on capital. The number of men engaged in agriculture was 114,000 in 1865, and 173,000 in 1875. This gives the average of £89 per head.

ARGENTINA

The area under crops, from official returns, was as follows :—

Year	Acres	Acres per Inhabitant
1854	375,000	0.4
1864	506,000	0.4
1874	825,000	0.4
1884	4,260,000	1.4
1889	7,430,000	2.2

The area under tillage was as follows :—

	Acres		
	1874	1884	1889
Wheat	271,000	1,717,000	2,820,000
Sundries . .	554,000	2,543,000	4,610,000
Total . .	825,000	4,260,000	7,430,000

The official statements published in May and December 1889 gave the following :—

	Acres				
	Wheat	Maize	Lucerne	Flax, Sugar, &c.	Total
Buenos Ayres	1,120,000	1,750,000	250,000	300,000	3,420,000
Santa Fé .	1,005,000	150,000	75,000	240,000	1,470,000
Entre Rios .	370,000	210,000	18,000	10,000	608,000
Cordoba .	140,000	200,000	195,000	55,000	590,000
Santiago .	75,000	150,000	40,000	35,000	300,000
Mendoza .	17,000	8,000	175,000	24,000	224,000
San Juan .	30,000	8,000	140,000	22,000	200,000
Corrientes .	...	65,000	4,000	46,000	115,000
Catamarca .	3,000	8,000	25,000	79,000	115,000
Other pro- } vinces }	60,000	165,000	80,000	80,000	385,000
Total .	2,820,000	2,714,000	1,002,000	891,000	7,427,000

Tillage has increased rapidly with the influx of Italian and other immigrants. The surplus grain for exportation was as follows :—

Year	Tons
1878–80	40,000
1881–84	120,000
1889	400,000

The last is only an estimate by local writers.

CROP.

	Tons.				Value of all Crops, £
	Wheat	Maize	Lucerne	Sugar	
Buenos Ayres .	280,000	520,000	500,000	...	6,800,000
Santa Fé . . .	250,000	45,000	150,000	8,000	2,800,000
Entre Rios . .	90,000	60,000	40,000	...	1,200,000
Cordoba . . .	35,000	60,000	400,000	...	1,200,000
Other provinces	50,000	125,000	910,000	44,000	5,800,000
Total	705,000	810,000	2,000,000	52,000	17,800,000

The summary of estimated crops in 1889 was as follows :—

	Quantity	Value, £	Acreage
Wheat, tons . .	705,000	4,200,000	2,800,000
Maize ,, . .	810,000	3,200,000	2,700,000
Barley ,, . .	120,000	600,000	300,000
Oats ,, . .	40,000	200,000	100,000
Lucerne ,, . .	2,000,000	3,500,000	1,000,000
Linseed ,, . .	40,000	300,000	200,000
Tobacco ,, . .	10,000	300,000	20,000
Sugar ,, . .	80,000	1,200,000	90,000
Wine, galls. . .	6,500,000	700,000	70,000
Sundries . . .	...	3,600,000	147,000
Total .	...	17,800,000	7,427,000

The live-stock shows the following official returns :—

	1864	1884	1888
Horses	3,875,000	4,186,000	4,400,000
Cattle	10,215,000	14,171,000	22,870,000
Sheep	23,111,000	70,910,000	70,450,000

The pastoral returns for 1888 showed thus :—

	Cows	Horses	Sheep	Value, £
Buenos Ayres	9,600,000	1,860,000	55,400,000	25,700,000
Entre Rios .	4,100,000	720,000	4,900,000	7,200,000
Santa Fé . .	2,300,000	530,000	2,900,000	4,300,000
Cordoba . .	2,100,000	410,000	2,400,000	3,700,000
Corrientes .	1,800,000	260,000	610,000	2,900,000
Santiago . .	590,000	110,000	780,020	1,060,000
San Luis . .	480,000	110,000	240,000	810,000
Pampas . .	470,000	110,000	1,670,000	1,080,000
Catamarca .	240,000	50,000	150,000	410,000
Tucuman .	200,000	40,000	40,000	320,000
Mendoza . .	180,000	45,000	120,000	320,000
Salta . . .	160,000	30,000	160,000	290,000
Jujuy . . .	90,000	20,000	600,000	270,000
Rioja . . .	160,000	25,000	60,000	180,000
Rio Negro .	80,000	20,000	300,000	180,000
San Juan .	50,000	25,000	60,000	110,000
Misiones, &c.	270,000	35,000	60,000	120,000
Total .	22,870,000	4,400,000	70,450,000	48,950,000

D

The sheep-farming industry since 1830 shows as follows :—

Year	Sheep, Millions	Wool Export, Million Lbs.	Price of Sheep
1830 . .	3	6	15 pence
1840 . .	5	13	25 ,,
1850 . .	7	21	35 ,,
1860 . .	14	45	55 ,,
1870 . .	41	137	60 ,,
1880 . .	61	215	70 ,,
1889 . .	70	300	60 ,,

River Plate wool loses 65 per cent. in the washing, the above being wool in the grease ; whereas Australian loses only 44, and Cape wool 30 per cent. In 1882 the livestock held by Irish settlers was valued at £7,200,000, and that of Scotch at £2,000,000 ; the land and stock of Irish and Scotch combined was worth 33 millions sterling.

The value of all farm products was approximately :—

	Agricultural	Pastoral	Total	Per Inhabitant
	£	£	£	£
Buenos Ayres	6,800,000	12,400,000	19,200,000	17.4
Santa Fé .	2,800,000	2,100,000	4,900,000	22.3
Entre Rios .	1,200,000	3,500,000	4,700,000	26.0
Cordoba .	1,200,000	1,800,000	3,000,000	15.1
Corrientes .	200,000	1,400,000	1,600,000	8.5
Mendoza .	900,000	150,000	1,050,000	14.0
Tucuman .	1,500,000	150,000	1,650,000	9.7
San Juan .	600,000	100,000	700,000	8.8
Salta . . .	600,000	150,000	750,000	5.0
Catamarca .	200,000	200,000	400,000	4.4
San Luis .	200,000	400,000	600,000	8.0
Santiago .	200,000	500,000	700,000	4.7
Rioja . . .	400,000	100,000	500,000	6.1
Jujuy . .	400,000	100,000	500,000	8.0
Territories .	600,000	1,150,000	1,750,000	11.0
Total .	17,800,000	24,200,000	42,000,000	14.0

The agricultural wealth of the Republic is distributed approximately as follows (1888) :—

	Land	Cattle	Sundries	Total	Per Inhabitant
	£	£	£	£	£
Buenos Ayres	60,200,000	25,700,000	9,500,000	95,400,000	87
Santa Fé	9,000,000	4,300,000	1,500,000	14.800,000	67
Entre Rios	7,800,000	7,200,000	1,700,000	16,700,000	92
Cordoba	5,200,000	3,700,000	1,000,000	9,900,000	32
Corrientes	5,200,000	2,900,000	900,000	9,000,000	47
Mendoza	3,800,000	300,000	400,000	4,500,000	60
Tucuman	2,800,000	300,000	300,000	3,400,000	20
San Juan	2,600,000	100,000	300,000	3,000,000	35
Salta	2,200,000	300,000	300,000	2,800,000	18
Catamarca	2,000,000	400,000	300,000	2,700,000	30
San Luis	1,800,000	800,000	300,000	2,900,000	39
Santiago	1,200,000	1,100,000	200,000	2,500,000	17
Rioja	1,000,000	200,000	100,000	1,300,000	16
Jujuy	600,000	300,000	100,000	1,000,000	15
Territories	5,200,000	1,400,000	700,000	7,300,000	45
Total . . .	110,600,000	49,000,000	17,600,000	177,200,000	60

SUMMARY OF PRODUCTS

				£
Crops already enumerated .	.	17,800,000
Wool, 300 million lbs. .	.	.	7,500,000
Meat, 300,000 tons	.	.	6,000,000
Dairy and poultry	.	.	4,000,000
Hides, tallow, &c.	.	.	6,700,000
Total .	.	.	.	42,000,000

Agricultural wealth has quadrupled since 1857, viz. :—

	Millions £ Sterling	
	1857	1888
Land	22	111
Cattle	18	49
Sundries	4	17
Total . . .	44	177

The product in 1889 was equal to 24 per cent. on capital. In the preceding valuation the unoccupied lands of Gran Chaco, Patagonia, &c., are not included.

URUGUAY

This country (sometimes called Banda Oriental) is chiefly pastoral, but tillage has increased notably in the last thirty years.

Year	Acres under Crop	Grain, Bushels		
		Wheat	Maize	Total
1855	150,000	700,000	400,000	1,100,000
1870	400,000	2,100,000	700,000	2,800,000
1883	750,000	3,500,000	1,200,000	4,700,000
1888	1,500,000	5,000,000	2,000,000	7,000,000

The above figures are official except for 1888, which is a rough estimate. The area is 45 million acres, and more than half the Republic is owned by Europeans. The Contribucion Directa returns give only the *value* of properties held by each nationality, but if we arrange the area on the same basis, we find that the tenure of land is as follows :—

Nationality	Landowners	Acres	Ratio
Natives . . .	31,000	18,700,000	41.6
Spaniards. . .	4,400	6,300,000	14.0
Italians . . .	3,900	5,700,000	12.6
Brazilians. . .	2,200	7,400,000	16 5
French . . .	1,600	2,900,000	6.4
British	300	1,600,000	3.5
Various . . .	4,200	2,400,000	5.4
Total . .	47,600	45,000,000	100.0

The number of landowners is unknown, but supposed to be one-tenth of the population, as in the above table.

The returns of live-stock were as follows :—

	1860	1887
Cattle	5,220,000	6,120,000
Horses	740,000	410,000
Sheep	2,590,000	15,900,000
Value, £	6,100,000	16,800,000

Agricultural and pastoral products in 1887 may be summed up thus :—

	Agricultural			Pastoral
	Tons	£		£
Wheat	140,000	900,000	Wool	1,800,000
Maize	50,000	200,000	Meat	2,700,000
Hay and straw	300,000	600,000	Dairy, &c.	700,000
Vegetables, &c.	...	500,000	Hides, &c.	2,800,000
Total	...	2,200,000	Total	8,000,000

Agricultural capital is estimated at 53 millions sterling, of which land stands for 34, and cattle for 14 millions. The product is almost 20 per cent. on capital.

PARAGUAY

Tillage has constituted almost the sole industry from the time of the Jesuit Missions, founded in 1557. The area under plough at the date of the expulsion of the Jesuits in 1767 was about 200,000 acres. A census was taken by President Lopez in 1863, and another in 1881, the country having been in the interim desolated (and all males over ten years killed) by the Brazilian army in the war of 1865–70. The areas under crops were :—

	Acres	
	1863	1881
Maize	349,000	206,000
Mandioca	110,000	120,000
Tobacco	23,000	10,000
Sugar	25,000	20,000
Cotton, rice, &c.	43,000	46,000
Total	550,000	402,000

All field-work is done by women, who cultivate 7 acres each. The men collect yerba-maté or Jesuit's tea, mind cattle, and convey the products to market. The soil is so rich that maize yields one hundred-fold, rice two hundred-fold. The ordinary crops are 4 million bushels of maize, 360,000 tons of mandioca, 10,000 tons sugar, 6000 tons tobacco, 300 million oranges, and 24 million lbs. of yerba-maté. The value of products may be summed up thus :—

				£
Maize and mandioca				1,600,000
Tobacco and sugar				300,000
Oranges, timber, &c.				200,000
Yerba-maté				400,000
Meat and sundries				500,000
Total				3,000,000

The statistics of live-stock show 730,000 cattle, 62,000 horses, 32,000 sheep.

The exports consist of 6000 tons yerba-maté, 7000 tons tobacco, 50 million oranges, and 2,000,000 feet of lumber, the whole worth £200,000 sterling. The price of land is from 1s. to 5s. an acre. In 1870 the Government made a general survey of the Republic, the result of which was as follows :—

	Acres
State lands, arable	27,300,000
Mountain and forest	17,500,000
Yerba-maté groves	3,200,000
All public lands	48,000,000
Private estates	9,600,000
Total area	57,600,000

The above is Paraguay proper, not including the Chaco territory on the western side of the Paraguay river.

BRAZIL

The total area is 2104 million acres, or almost the same as that of the United States. It is made up thus :—

	Millions of Acres
Under crops	20
Forest	134
Uncultivated	1,950
Total	2,104

The principal products are as follows :—

	Acres	Crop, Tons	Value of Crop	Value Exported
			£	£
Coffee	1,600,000	340,000	20,000,000	14,000,000
Sugar	300,000	330,000	5,000,000	2,600,000
Cotton	70,000	24,000	1,200,000	600,000
Tobacco	60,000	30,000	1,500,000	1,000,000
Yerba-maté	10,000,000	40,000	1,100,000	600,000
Indiarubber	...	6,000	1,200,000	1,200,000
Total	12,030,000	...	30,000,000	22,000,000

There are no returns of live-stock. The climate is too hot for sheep, and the number of cows and horses is probably about two millions, judging by the export of hides. Official returns give 16 million cows, a gross exaggeration. In 1882 the coffee-fields had 550 million plants, yielding about 1 lb. each, the number of hands being over 300,000 : the crop has since risen to 340,000 tons ; sugar plantations employ 90,000 negroes, cotton 50,000. The above table takes no account of maize or mandioca, large quantities of which are produced to feed the negroes.

Wheat and rice are also grown on a smaller scale. About one million persons altogether are engaged in agriculture, including 90,000 Germans, mostly in Rio Grande do Sul, and an equal number of Italians in San Paulo, Santa Catharina, and other southern provinces. The gross value of all agricultural products is said to average 40 millions sterling per annum.

An able-bodied man can cultivate the following ; that is, any one of these items :—

	Acres	Crop	Value, £
Coffee	5	25	50
Sugar	5	100	70
Cotton	7	100	70
Mandioca	4	160	80

An acre of coffee has 400 trees ; of cotton, 2000 plants. Coffee was first introduced in 1754.

AUSTRALIA

The several colonies show as follows :—

	Population	Acres	Acres per Inhabitant
New South Wales	1,086,000	198,400,000	182
Victoria	1,090,000	56,300,000	52
Queensland	390,000	427,500,000	1,095
South Australia	310,000	578,000,000	1,870
New Zealand	610,000	66,600,000	109
Tasmania	150,000	16,600,000	111
Western Australia	40,000	624,000,000	15,600
Total	3,676,000	1,967,400,000	532

Mr. Coghlan's work on Australia shows the progress of tillage from 1861 to 1888 as follows :—

	Acres Cultivated				Acres per 100 Inhabitants			
	1861	1871	1881	1888	1861	1871	1881	1888
New South Wales . . .	295,000	420,000	645,000	1,000,000	86	84	85	92
Victoria	420,000	930,000	1,680,000	2,230,000	75	130	190	202
Queensland . . .	5,000	60,000	120,000	190,000	18	52	52	50
South Australia . . .	400,000	840,000	2,170,000	2,340,000	320	455	805	750
New Zealand . . .	225,000	1,110,000	4,940,000	7,525,000	280	440	1,020	1,250
Tasmania . . .	245,000	310,000	350,000	460,000	280	310	305	310
Western Australia . .	24,000	50,000	55,000	65,000	150	200	180	155
Total . . .	1,614,000	3,720,000	9,960,000	13,810,000	130	186	360	375

	Acres Cultivated							
	1861				1888			
	Grain	Hay	Sundries	Total	Grain	Hay	Sundries	Total
New South Wales . .	190,000	45,000	60,000	295,000	480,000	210,000	310,000	1,000,000
Victoria . . .	290,000	75,000	55,000	420,000	1,505,000	410,000	315,000	2,230,000
Queensland . . .	...	...	5,000	5,000	95,000	20,000	75,000	190,000
South Australia . .	320,000	65,000	15,000	400,000	1,625,000	310,000	405,000	2,340,000
New Zealand . .	50,000	...	175,000	225,000	780,000	50,000	6,695,000	7,525,000
Tasmania . . .	95,000	30,000	120,000	245,000	80,000	50,000	330,000	460,000
Western Australia . .	15,000	7,000	2,000	24,000	37,000	24,000	4,000	65,000
Total . .	960,000	222,000	432,000	1,614,000	4,602,000	1,074,000	8,134,000	13,810,000

The following table shows in detail the cultivation in 1888 :—

	Acres						
	N. S. Wales	Victoria	Queensland	S. Australia	N. Zealand	Tasmania	W. Australia
Wheat	305,000	1,220,000	10,000	1,605,000	360,000	40,000	30,000
Maize	165,000	5,000	85,000	...	5,000	...	...
Oats	7,000	200,000	...	5,000	370,000	35,000	2,000
Barley	3,000	80,000	...	15,000	45,000	5,000	5,000
Hay	210,000	410,000	20,000	310,000	50,000	50,000	24,000
Grasses . . .	200,000	185,000	5,000	25,000	6,230,000	180,000	..
Sundries . . .	110,000	130,000	70,000	380,000	465,000	150,000	4,000
Total . .	1,000,000	2,230,000	190,000	2,340,000	7,525,000	460,000	65,000

The area and crops of grain were as follows :—

	Acres				Tons			
	1861	1871	1881	1888	1861	1871	1881	1888
Wheat	730,000	1,380,000	3,360,000	3,570,000	300,000	400,000	810,000	710,000
Maize	60,000	140,000	170,000	260,000	50,000	130,000	170,000	200,000
Oats	145,000	360,000	440,000	620,000	60,000	130,000	200,000	250,000
Barley	30,000	60,000	105,000	160,000	15,000	30,000	50,000	80,000
Total . .	965,000	1,940,000	4,075,000	4,610,000	425,000	690,000	1,230,000	1,240,000

The yield of barley from 1861 to 1881 was not ascertained, but the crop averages half a ton per acre, the estimate given above. The following table shows the approximate area and crop of grain from 1830 compared with population, viz. :—

Year	Acres, Grain	Crop, Tons	Cwts. per Inhabitant
1830	50,000	20,000	4.0
1840	180,000	70,000	5.6
1850	300,000	120,000	6.7
1861	965,000	425,000	6.6
1871	1,940,600	690,000	7.0
1881	4,075,000	1,230,000	9.0
1888	4,610,000	1,240,000	6.6

The acreage of other crops since 1861 is shown thus :—

	Acres			
	1861	1871	1881	1888
Vineyards . .	6,500	16,300	14,600	26,800
Sugar . . .	...	14,000	40,000	62,600
Tobacco . .	400	900	3,200	6,600
Potatoes . .	57,000	81,000	99,000	112,000
Hay	220,000	315,000	835,000	1,074,000
Grasses . . .	170,000	870,000	4,360,000	6,820,000
Sundries . .	195,100	492,800	533,200	1,098,000
Total .	649,000	1,790,000	5,885,000	9,200,000

The production in 1888 as regards the several Colonies was as follows :—

	Tons							Total
	New South Wales	Victoria	Queensland	South Australia	New Zealand	Tasmania	Western Australia	
Wheat	40,000	230,000	...	170,000	240,000	20,000	10,000	710,000
Maize	140,000	...	60,000	...	...	...	...	200,000
Oats	...	50,000	...	...	185,000	15,000	...	250,000
Barley	...	40,000	...	5,000	31,000	2,000	2,000	80,000
All grain	180,000	320,000	60,000	175,000	456,000	37,000	12,000	1,240,000
Potatoes	41,000	155,000	21,000	20,000	135,000	53,500	1,500	427,000
Hay	140,000	275,000	15,000	205,009	34,000	36,000	15,000	720,000
Sugar	5,000	...	35,000	...	...	...	...	40,000
Tobacco	2,800	700	70	...	...	...	...	3,570

The weight of miscellaneous crops to the acre in 1888 was as follows :—

	.Crop	Per Acre
Wine, galls. . .	2,800,000	104
Sugar, cwts. . .	800,000	13
Tobacco, cwts. .	70,000	11
Potatoes ,, .	8,600,000	77
Hay ,, .	15,000,000	14

The value of live-stock at various dates was approximately :—

Year	£	Year	£
1821	1,500,000	1861	21,000,000
1842	7,600,000	1888	67,000,000

The pastoral wealth of Australia is of paramount importance, and has doubled since 1871. The following table is official :—

Year	Horses	Cows	Sheep	Pigs	Export of Wool, lbs.
1800	200	1,040	6,100	...	...
1810	1,130	12,440	25,900	9,540	...
1821	4,560	102,900	209,100	33,900	...
1842	70,600	1,015,000	6,310,000	66,000	14,000,000
1861	449,200	4,040,000	23,700,000	280,000	70,000,000
1871	782,000	4,710,000	49,800,000	740,000	190,000,000
1881	1,249,000	8,710,000	78,600,000	905,000	325,000,000
1888	1,504,000	9,280,000	96,600,000	1,140,000	553,000,000*

In 1888 the distribution of stock was as follows :—

	Horses	Cattle	Sheep	Pigs	Approximate Value, £
New South Wales	410,000	1,620,000	46,500,000	250,000	24,900,000
Victoria	320,000	1,370,000	10,820,000	245,000	12,000,000
Queensland	320,000	4,655,000	13,445,000	70,000	11,700,000
South Australia	170,000	430,000	7,150,000	170,000	4,800,000
New Zealand	204,000	960,000	15,120,000	340,000	11,200,000
Tasmania	30,000	140,000	1,430,000	40,000	1,200,000
Western Australia	40,000	95,000	2,115,000	25,000	1,200,000
Total . .	1,504,000	9,280,000	96,580,000	1,140,000	67,000,000

Mr. Coghlan's official estimates of the value of agricultural and pastoral products is as follows for 1888 :—

	Agricultural	Pastoral	Total	Per Inhabitant
	£	£	£	£
N. S. Wales .	4,150,000	13,060,000	17,210,000	15.8
Victoria . . .	7,330,000	6,280,000	13,610,000	12.5
Queensland .	1,845,000	6,445,000	8,290,000	21.2
South Australia	5,200,000	2,500,000	7,700,000	24.8
New Zealand .	6,775,000	5,785,000	12,560,000	20.6
Tasmania . .	1,270,000	660,000	1,930,000	13.0
W. Australia .	260,000	660,000	920,000	23.0
Total . .	26,830,000	35,390,000	62,220,000	17.1

The values of all rural products at various dates were approximately as follows :—

Year	Wool	Sundries	Total
	£	£	£
1840	1,400,000	2,200,000	3,600,000
1850	4,500,000	3,800,000	8,300,000
1860	6,600,000	13,000,000	19,600,000
1870	10,200,000	19,000,000	29,200,000
1880	22,000,000	34,000,000	56,000,000
1888	17,200,000	45,000,000	62,200,000

The values of agricultural products are not classified, but seem to have been approximately as in the subjoined table :—

	Agricultural		Pastoral
	£		£
Grain . . .	8,700,000	Wool . . .	17,100,000
Hay and straw	2,400,000	Mutton . .	4,000,000
Potatoes . . .	1,100,000	Beef . . .	4,000,000
Fruit and vegetables }	2,600,000	Pork . . .	1,200,000
		Poultry . .	1,000,000
Sugar . . .	500,000	Dairy . . .	4,090,000
Wine	300,000	Foals . . .	2,000,000
Tobacco. . .	100,000	Hides, tallow, &c. }	2,000,000
Clover, &c. . .	11,130,000		
Total .	26,830,000	Total .	35,390,000

The total agricultural capital is estimated by Mr. Coghlan at 373 millions sterling. If we suppose it to be distributed in the same ratio as the value of products, the result would be as follows :—

---

* This is the equivalent of unwashed wool, but the actual weight exported was less, a portion being washed.

	Agricultural Capital				Ratio
	Land	Cattle	Sundries	Total	
New South Wales . . .	68,000,000	24,900,000	10,300,000	103,200,000	27.5
Victoria	61,500,000	12,000,000	8,200,000	81,700,000	22.0
Queensland	33,100,000	11,700,000	5,000,000	49,800,000	13.4
South Australia . . .	36,800,000	4,800,000	4,600,000	46,200,000	12.4
New Zealand	56,700,000	11,200,000	7,500,000	75,400,000	20.2
Tasmania	9,200,000	1,200,000	1,200,000	11,600,000	3.0
Western Australia . . .	3,800,000	1,200,000	500,000	5,500,000	1.5
Total . . .	269,100,000	67,000,000	37,300,000	373,400,000	100.0

It would appear, however, that the agricultural capital is much greater than Mr. Coghlan's estimate. In another chapter of his book he shows the wealth of Australia (not including railways or public works) amounted in 1889 to 1136 millions sterling, of which 410 millions belonged to New South Wales, which included 181 millions for land.

In fact, the value of land seems to be 533 millions sterling, and the total agricultural capital as follows :—

	Capital, Millions Sterling			Product, Millions, £	Ratio to Capital
	Land	Cattle, &c.	Total		
N. S. Wales . .	181	35	216	17.2	8.0
Victoria . . .	107	20	127	13.6	9.3
Queensland . .	58	17	75	8.3	9.0
S. Australia . .	64	9	73	7.7	10.6
New Zealand .	100	19	119	12.6	10.6
Tasmania . .	16	2	18	1.9	10.5
W. Australia .	7	2	9	0.9	10.0
Total . .	533	104	637	62.2	9.8

CAPE COLONY

Tillage is a secondary industry, the latest returns for 1875 comparing with those for 1865 as follows :—

		1865	1875
Acres under grain	. .	387,000	465,000
Crop, bushels .	. .	2,440,000	4,180,000
Vineyards, acres	. .	16,000	18,000
Yield, galls. wine	. .	3,240,000	4,488,000

Farms cover an area of 89 million acres, or 67 per cent. of the total, viz. :—

					Acres
Tillage	.	.	.	.	800,000
Pasture	.	.	.	.	78,000,000
Timber	.	.	.	.	10,800,000
Area of farms	.	.	.	.	89,600,000
Public lands	.	.	.	.	45,400,000
	Total	.	.	.	135,000,000

The value of all products in 1887 was approximately :—

	Tons	£	Sundries	£
Wheat . .	100,000	700,000	Wine . .	300,000
Barley . .	15,000	100,000	Fruit, &c. .	500,000
Oats . . .	25,000	150,000	Dairy and }	1,000,000
Maize, &c. .	100,000	550,000	poultry }	
			Meat . .	2,000,000
All grain .	240,000	1,500,000	Wool . .	1,700,000
Straw . .	200,000	160,000	Feathers, }	1,100,000
			hides, &c. }	
Grain crops	...	1,600,000		
			Sundries .	6,600,000

Returns of live-stock were as follows :—

Year	Horses	Cattle	Sheep	Pigs	Goats	Ostriches
1840	57,000	307,000	2,340,000	...	394,000	...
1865	227,000	690,000	9,840,000	79,000	...	...
1875	241,000	1,330,000	11,280,000	130,000	2,790,000	22,200
1889	295,000	1,505,000	14,410,000	140,000	5,140,000	149,500

	£
Agricultural products . . .	2,400,000
Animal products	5,800,000
Total . .	8,200,000

The value of the farms may be roughly estimated at 42 millions sterling ; product, 19 per cent. on capital.

NATAL

This colony comprises 12,780,000 acres, viz. :—

Held by				Acres
European settlers	.	.	.	8,000,000
Kaffirs .	.	.	.	2,000,000
British Crown .	.	.	.	2,780,000
Total .	.	.	12,780,000

The area under tillage (chiefly sugar) is as follows :—

Farms of					Acres
Europeans	.	.	.	.	66,000
Kaffirs .	.	.	.	.	175,000
Total .	.	.	.	241,000

The returns of live-stock show thus :—

	Owned by		
	Europeans	Kaffirs	Total
Horses	23,000	31,000	54,000
Cows	165,000	447,000	612,000
Sheep	448,000	36,000	484,000
Goats	56,000	251,000	307,000

ORANGE FREE STATE

Area, 26,600,000 acres—say, 450 per inhabitant. There are 6000 cattle-farms, occupying 23,600,000 acres—say, 4000 each. They have 130,000 horses, 460,000 cattle, 5,050,000 sheep, 670,000 goats, and 2200 ostriches. Tillage, 115,000 acres.

MAURITIUS

A small island, only 450,000 acres, sugar being the principal crop. The industry rose rapidly till 1877, and is now declining, viz. :—

Year				Acres under Sugar	Tons Exported
1814	.	.	.	2,000	500
1836	.	.	.	57,000	30,000
1877	.	.	.	160,000	136,000
1887	.	.	.	...	95,000

Timber is also produced, especially ebony.

CEYLON

Official returns are as follows :—

	Acreage			Stock
Rice	740,000	Horses . .		4,000
Cocoa-nuts . . .	630,000	Cattle . . .		950,000
Tea.	200,000	Sheep . . .		46,000
Coffee	100,000	Goats . . .		88,000
Sundries	444,000			
Area cultivated . .	2,114,000			

The cultivated area is about 13 per cent. of the total, which is 16,230,000 acres. Among the crops of minor extent are chinchona 3400, tobacco 16,000, cinnamon 36,000 acres. The coffee plantations have been ravaged by an insect called Hemileia. New products have therefore been called into requisition.

The exports of 1887 compare with those of 1873 thus :—

	1873	1887	Value in 1887
	Tons	Tons	£
Coffee	49,500	9,000	900,000
Chinchona	...	6,400	190,000
Tea	...	5,500	660,000
Cinnamon	10,500	18,400	80,000
Oil	110,000	310,000	320,000

Many of the farms are owned by English settlers, who number 4000 in the island.

INDIA

The area in acres and the population in 1881 were :—

	Acres	Population	Acres per Inhabitant
Bengal	100,200,000	66,700,000	1.5
Bombay . . .	70,400,000	16,500,000	4.9
Madras	90,850,000	31,300,000	2.9
Assam	28,650,000	4,900,000	6.4
Punjaub . . .	95,600,000	18,900,000	3.6
Oudh	15,300,000	11,800,000	1.3
N. W. Provinces	57,100,000	32,300,000	1.6
Central Provinces	74,200,000	9,800,000	5.5
Berar, &c. . . .	12,400,000	3,300,000	4.4
Upper Burmah .	128,000,000	5,000,000	25.6
Lower Burmah .	57,500,000	3,700,000	18.0
British India . .	730,200,000	204,200,000	3.4
Hydrabad . . .	52,500,000	9,800,000	5.4
Rajpoot . . .	83,200,000	10,300,000	8.1
Baroda	5,500,000	2,200,000	2.5
Mysore	15,900,000	4,200,000	3.8
Various	168,900,000	28,700,000	6.0
Feudatories . .	326,000,000	55,200,000	5.9
All India . . .	1,056,200,000	259,400,000	3.9

There are no late statistics available for Bengal. The cultivated area of the other provinces was as follows in 1888 :—

	Acres					
	Rice	Wheat	Other Grain	Cotton	Sundries	Total
Bombay	2,170,000	2,410,000	17,130,000	2,870,000	1,990,000	26,570,000
Madras	6,290,000	20,000	13,970,000	1,460,000	2,140,000	23,880,000
Assam	1,240,000	...	50,000	...	380,000	1,670,000
Punjaub	730,000	6,640,000	12,160,000	640,000	1,340,000	21,510,000
Oudh	2,220,000	1,550,000	6,140,000	80,000	520,000	10,510,000
North-West Provinces .	3,930,000	3,460,000	17,550,000	1,450,000	2,010,000	28,400,000
Central Provinces . .	3,710,000	4,740,000	4,060,000	590,000	1,490,000	14,590,000
Berar, &c.	100,000	1,070,000	2,920,000	1,940,000	640,000	6,670,000
Lower Burmah . . .	3,850,000	...	10,000	10,000	50,000	3,920,000
Total . .	24,240,000	19,890,000	73,990,000	9,040,000	10,560,000	137,720,000

The wheat area of Bengal is supposed to be about 7,000,000 acres, bringing up the total to nearly 27 millions. The crops which are included above as "Sundries" are :—

	Acres					
	Oil-Seed	Sugar	Coffee	Tea	Indigo	Tobacco
Bombay	1,810,000	80,000	...	...	5,000	90,000
Madras	1,510,000	50,000	60,000	5,000	500,000	85,000
Assam	150,000	20,000	...	210,000	...	...
Punjaub	820,000	370,000	...	10,000	75,000	65,000
Oudh	260,000	230,000	...	...	20,000	10,000
North-West Provinces .	700,000	960,000	...	10,000	300,000	40,000
Central Provinces . .	1,420,000	50,000	...	...	...	20,000
Berar, &c. . . .	610,000	...	290,000	...	...	20,000
Lower Burmah . .	20,000	10,000	...	...	...	20,000
Total . .	7,300,000	1,770,000	350,000	235,000	900,000	350,000

If we suppose the working agricultural population to be 20 per cent. of the total, the average product of each man's labour in British India will be found as follows :—25 bushels grain, 24 bushels rice, 23 lbs. cotton, 2½ lbs. tea, 34 lbs. jute, 2¼ lbs. coffee, 5 oz. opium, 6 lbs. sugar, 50 lbs. oil-seed, which, with indigo, tobacco, and other products, bring up the average value to £8 sterling per head. Adding animal products, the total will be £10 per head.

The following statement for 1888 gives a comprehensive view :—

	Acres				
	Under Crops	Available for Cultivation	Not Available	Forest	Total
Bombay	26,350,000	14,770,000	8,450,000	5,880,000	55,450,000
Madras	23,330,000	13,320,000	12,480,000	9,370,000	58,500,000
Assam	1,700,000	660,000	9,340,000	1,900,000	13,600,000
Punjaub	20,590,000	27,560,000	12,110,000	4,620,000	64,880,000
Oudh	8,830,000	3,850,000	2,250,000	570,000	15,500,000
North-West Provinces . .	25,240,000	10,290,000	6,700,000	5,220,000	47,450,000
Central Provinces . .	14,140,000	8,910,000	7,380,000	12,810,000	43,240,000
Berar, &c.	6,780,000	2,110,000	3,280,000	930,000	13,100,000
Lower Burmah . . .	4,270,000	23,750,000	24,530,000	3,260,000	55,810,000
Total . . .	131,230,000	105,220,000	86,520,000	44,560,000	367,530,000

The aggregate area of the above States is 502 million acres, from which it appears that 135 million acres have not yet been classified as suitable or not for cultivation. The above table is, moreover, irrespective of Bengal and Upper Burmah, the total area of British India, as already shown, being 730 million acres. The following table shows the area of lands irrigated, of lands cultivated without irrigation, of lands uncultivated, and the extent of each Province :—

	Acres				
	Irrigated	Not Irrigated	Crops and Fallow	Uncultivated	Total
Bombay	2,420,000	31,980,000	34,400,000	36,000,000	70,400,000
Madras	6,230,000	22,070,000	28,300,000	62,550,000	90,850,000
Assam	...	2,350,000	2,350,000	26,300,000	28,650,000
Punjaub	6,090,000	18,610,000	24,700,000	70,900,000	95,600,000
Oudh	2,470,000	6,830,000	9,300,000	6,000,000	15,300,000
North-West Provinces . .	6,210,000	21,290,000	27,500,000	29,600,000	57,100,000
Central Provinces . .	500,000	15,000,000	15,500,000	58,700,000	74,200,000
Berar, &c.	1,000,000	7,050,000	8,050,000	4,350,000	12,400,000
Lower Burmah . . .	...	4,700,000	4,700,000	52,800,000	57,500,000
Total . . .	24,920,000	129,880,000	154,800,000	347,200,000	502,000,000

Including Bengal, but not Upper Burmah, the products of British India may be estimated as follows (1888) :—

	Product, Tons	Value, £	Export, Tons	Value, £
Wheat .	6,800,000	54,400,000	700,000	5,600,000
Rice . .	24,200,000	145,000,000	1,400,000	9,300,000
Cotton .	410,000	21,000,000	270,000	14,400,000
Tea . .	45,000	5,800,000	40,000	5,300,000
Jute . .	630,000	8,000,000	480,000	6,100,000
Coffee . .	40,000	4,000,000	15,000	1,500,000
Opium .	6,000	12,000,000	5,000	10,000,000
Sugar . .	100,000	1,100,000	60,000	600,000
Oil-seeds .	900,000	10,500,000	800,000	9,400,000
Various grain }	18,000,000	92,500,000	...	...
Total	...	354,300,000	...	62,200,000

The above values, being computed by the Custom-House in rupees at 24d., are nominal ; from each item should be deducted 25 per cent. to get a fair value.

The exports of wheat and rice showed thus :—

Wheat, Annual Average			Rice, Annual Average		
Period	Tons	Official Value, £	Period	Tons	Official Value, £
1873-76	72,000	600,000	1851-60	420,000	1,800,000
1877-81	190,000	1,600,000	1861-64	990,000	3,500,000
1882-85	900,000	7,550,000	1873-80	1,010,000	6,400,000
1886-88	950,000	7,400,000	1881-88	1,380,000	8,600,000

There are statistics for live-stock for the following provinces, but not for Bengal, Assam, or Central Provinces :—

	Cows	Buffaloes	Horses	Mules, &c.	Sheep and Goats
Bombay .	6,480,000	1,770,000	140,000	...	3,220,000
Madras .	9,080,000	2,450,000	40,000	105,000	9,580,000
Punjaub .	9,120,000	2,550,000	210,000	460,000	6,160,000
Oudh . .	5,520,000	1,070,000	125,000	60,000	1,700,000
N. W. Prov	13,120,000	3,120,000	325,000	270,000	4,540,000
Berar, &c.	1,850,000	360,000	40,000	25,000	650,000
Lower Burmah }	920,000	660,000	10,000	...	20,000
Total	46,090,000	11,980,000	890,000	920,000	25,870,000

Including the provinces for which we have no returns, it may be estimated that the total live-stock of India is as follows :—

Cows	. . .	57,600,000	Mules, &c.	.	1,150,000
Buffaloes .	.	15,000,000	Sheep	.	13,500,000
Horses .	.	1,100,000	Goats	.	19,000,000

The value of all products may be roughly estimated as follows :—

				£
Agricultural products	.	.	.	320,000,000
Animal products	.	.	.	80,000,000
Total .	.	.		400,000,000

JAVA

This island is mostly in the hands of a company founded by the King of Holland in 1824 ; paid-up capital, £3,200,000. There are 18 million inhabitants, who are " exploited " by the Dutch, yielding a net tribute of 3 millions sterling per annum. Governor Vanden Bosch planted 50 million coffee-trees in 1834, and the industry has thriven.

The goods annually sold by the Java Company at Amsterdam are :—

				Value, £
Coffee, 100,000 tons	.	.	.	3,300,000
Sugar, 220,000 ,,	.	.	.	4,000,000
Spices, &c. . .	.	.	.	700,000
Total				8,000,000

No statistics are published of the area under crops. Tillage is compulsory in the various villages, the Dutch fixing the price that they pay for each product.

The area under tillage in 1887 compared with 1831 as follows :—

				Acres 1881	Acres 1887
Rice .	.	.	.	4,100,000	5,100,000
Maize.	.	.	.	800,000	1,600,000
Sugar.	.	.	.	52,000	105,000
Tobacco	.	.	.	190,000	185,000
Cotton	.	.	.	25,000	42,000
Beans	.	.	.	280,000	390,000
Sundries	.	.	.	953,000	1,078,000
Total	.	.		6,400,000	8,500,000

The improvement is mainly due to the new agrarian law, giving settlers a squatter's tenure for seventy-five years. Besides the lands held by the Dutch Company, there were in 1886 the following estates :—

			No.	Acres	Average, Acres
Europeans .	.	.	121	1,980,000	16,500
Chinese .	.	.	229	710,000	3,100
Malays, &c. .	.	.	55	42,000	730
Total .	.	.	405	2,732,000	6,800

The area under sugar was as follows :—

Year	Acres Company	Acres Private Lands	Acres Total
1879	70,000	8,000	78,000
1887	25,000	46,000	71,000

The production of chinchona was as follows :—

Year	Tons Company	Tons Private	Tons Total
1882	126	48	174
1886	263	672	935

The crops of 1886 also comprised 80,000 tons coffee, 300,000 tons sugar, 12,000 tons tobacco, 700 tons indigo, and 3400 tons tea.

JAPAN

The area may be described as follows :—

				Acres Public	Acres Private	Acres Total					Acres
Open .	.	.	.	29,780,000	2,960,000	32,740,000	Rice .	.	.	.	6,460,000
Cultivated	.	.	.	...	11,500,000	11,500,000	Grain, &c. .	.	.	.	4,110,000
Forest .	.	.	.	16,900,000	18,300,000	35,200,000	Pasture .	.	.	.	33,630,000
Total .	.			46,680,000	32,760,000	79,440,000	Total .	.			44,200,000

In 1887 the statistics showed as follows :—

				Acres	Tons	Cwts. per Acre
Rice .	.	.	.	6,460,000	5,000,000	16
Wheat .	.	.	.	3,900,000	2,200,000	11
Buckwheat	.	.		390,000	140,000	7
Millet .	.	.	.	590,000	300,000	10
Beans .	.	.	.	1,140,000	400,000	7
Sorghum	.	.	.	70,000	35,000	10
Sugar .	.	.	.	...	35,000	...
Tea . .	.	.	.	...	25,000	...

The rice crop averages 5 million tons, of which 400,000 are used for making Sâke beer, 150,000 for confectionery, and the rest for food. A bushel of rice produces 10 gallons of Sâke, the quantity produced being about 160 million gallons yearly. There are 266 great landlords, called Daimios, who have rent-rolls from £15,000 a year upwards. They own most of Japan, and have 893,000 tenants. The value of the crops is approximately as follows : rice, £30,000,000 ; wheat, £17,200,000 ; other grain, £6,700,000 ; tea, £2,700,000 ; sugar and sundries, £1,400,000 ; making a total of 58 millions sterling for 13 million acres under crops.

WEST INDIES, BRITISH

The islands and the colony of Guiana on the mainland show approximately as follows :—

ACRES

	Sugar	Sundries	Cultivated	Uncultivated	Area
Jamaica .	35,000	565,000	600,000	2,100,000	2,700,000
Trinidad.	50,000	680,000	730,000	370,000	1,100,000
Small islands }	80,000	520,000	600,000	3,800,000	4,400,000
Guiana .	80,000	80,000	160,000	69,840,000	70,000,000
Total .	245,000	1,845,000	2,090,000	76,110,000	78,200,000

The sugar crop of the islands has fluctuated thus :—

Year	Tons	Year	Tons
1824	400,000	1877	160,000
1830	220,000	1887	220,000

Jamaica is capable of producing much more than it does, not quite one-fourth of the island being cultivated.

The area under all crops and the production of sugar compare thus with population :—

	Popula-tion	Tillage		Sugar	
		Acres	Per Inhabitant	Tons	Lbs. per Inhabitant
Jamaica .	600,000	600,000	1.0	40,000	150
Trinidad .	180,000	730,000	5.1	70,000	800
Small islands }	510,000	600,000	1.2	110,000	500
Guiana .	280,000	160,000	0.6	140,000	1,100
Total .	1,570,000	2,090,000	1.3	360,000	500

SPANISH WEST INDIES

The possessions are now reduced to two islands, viz :—

	Acres	Population	Acres per Inhabitant	Sugar Crop, Tons
Cuba . . .	30,700,000	1,020,000	30	580,000
Porto Rico .	2,400,000	640,000	4	120,000
Total .	33,100,000	1,660,000	20	700,000

Cuba is naturally a productive island, one-half larger than Ireland, but ruined by misgovernment and taxation. A rebellion, which lasted ten years, was put down in 1878, after one-third of the sugar estates had been burnt, reducing the number from 1190 to 700. The Census of 1880 showed 192 coffee estates, 700 sugar plantations, 4500 vegas or tobacco-fields, 3200 potreros or cattle-farms, and 17,000 small farms and plantations.

The export of sugar has been :—

Year							Tons
1833 .	.	.	.	.	.	.	90,000
1860–73	.	.	.	.	.	.	660,000
1874–78	.	.	.	.	.	.	580,000
1880–86	.	.	.	.	.	.	540,000

The tobacco crop averages 20,000 tons, value 5 millions sterling, sugar being worth about 10 millions. The total value of products is over 20 millions.

Porto Rico, about the size of Corsica, suffers in a less degree than Cuba from exorbitant export duties.

The crops average :—

	Tons	Value, £
Sugar	120,000	1,500,000
Coffee	20,000	1,200,000
Tobacco	10,000	500,000
Total . .	...	3,200,000

The area under crops is less than one-fourth of the island. Cattle-farms also cover a portion.

CANARY ISLANDS

Another Spanish colony, backward owing to misgovernment. The islands are :—

	Acres	Population	Acres per Inhabitant
Teneriffe . . .	680,000	94,000	7
Grand Canary .	580,000	69,000	8
Palma	160,000	31,000	5
Other islands . .	380,000	43,000	9
Total . .	1,700,000	237,000	7

Most of the soil is barren, official returns showing only 450,000 acres under cultivation. The value of the farms in 1860 was assessed at 13 millions sterling; that of the wine and grain crops, £400,000. The crops averaged 6

million gallons of wine, 800,000 bushels of grain, 40,000 tons of potatoes, and 6 million lbs. cochineal.

PHILIPPINE ISLANDS

Also Spanish, and badly governed. There are 10 large and 970 small islands, with an aggregate area of 85 million acres, of which 5 per cent. is cultivated.

Luzon has 2,670,000 acres, the other islands 1,780,000, under tillage, viz. :—

	Acres	Crops
Rice	3,140,000	60,000,000 bush.
Sugar . . .	640,000	450,000 tons
Hemp . . .	260,000	...
Tobacco, coffee, &c. .	410,000	...
Total .	4,450,000	...

About one-third of the sugar is exported, besides 10,000 tons of tobacco. Coffee was first planted in 1836, and the crop now reaches 60,000 tons. There are 160 sugar-estates with steam-mills. The canals made by the Jesuits have been suffered to fill up.

ALCOHOL

The degrees in wines and liquors are :—

Beer . . .	4.0	Gooseberry .	11.8	Ratafia . .	21.0
Porter . . .	4.5	Champagne .	12.2	Madeira . .	21.0
Ale . . .	7.4	Claret . .	13.3	Port . .	23.2
Cider . . .	8.6	Burgundy .	13.6	Curaçoa . .	27.0
Perry . . .	8.8	Malaga .	17.3	Aniseed . .	33.0
Elder . . .	9.3	Lisbon . .	18.5	Maraschino .	34.0
Moselle . .	9.6	Canary . .	18.8	Chartreuse .	43.0
Tokay . .	10.2	Sherry . .	19.0	Gin . . .	51.6
Rhine . .	11.0	Vermouth .	19.0	Brandy . .	53.4
Orange .	11.2	Cape . . .	19.2	Rum . . .	53.7
Bordeaux .	11.5	Malmsey .	19.7	Irish whisky .	53.9
Hock . . .	11.6	Marsala . .	20.2	Scotch whisky	54.3

Spirits are said to be "proof" when they contain 57 per cent. The maximum amount of alcohol, says Parkes, that a man takes daily without injury to his health is that contained in 2 oz. brandy, ¼ pint of sherry, ½ pint claret, or 1 pint of beer.

ALCOHOLIC DRINKS

The consumption of all kinds of liquor is as follows :—

	Millions of Gallons				Gallons per Inhab.			
	Wine	Beer and Cider	Spirits	All Reduced to Alcohol	Wine	Beer and Cider	Spirits	Equivalent in Alcohol
U. Kingdom .	14	1,020	34	71	0.4	27.0	0.9	1.9
France . . .	750	410	40	131	19.0	11.0	1.9	3.5
Germany . . .	120	880	60	86	2.5	18.0	1.3	2.2
Russia . . .	40	80	91	52	0.5	0.9	1.0	0.6
Austria . . .	200	250	30	45	5.2	6.5	1.6	1.6
Italy	480	30	13	56	16.5	1.0	0.4	1.9
Spain . . .	260	5	5	29	15.0	0.3	0.3	1.7
Portugal . .	60	1	1	7	12.7	0.2	0.2	1.5
Sweden . . .	2	30	20	11	0.4	6.2	4.2	2.3
Norway . . .	1	10	7	4	0.4	5.0	3.5	2.0
Denmark . .	1	25	8	5	0.5	12.5	4.0	2.5
Holland . . .	3	40	12	8	0.7	8.8	2.6	1.8
Belgium . . .	4	170	10	14	0.7	28.5	1.6	2.0
Switzerland .	30	10	5	6	10.0	3.3	1.7	2.0
Roumania . .	16	10	4	5	3.0	1.8	1.0	1.0
Servia . . .	10	4	2	3	5.0	2.0	1.0	1.5
Europe . . .	1,991	2,975	342	523	6.0	9.0	1.1	1.6
United States .	21	630	76	73	0.4	10.5	1.3	1.2
Canada . . .	3	40	5	5	0.6	8.0	1.0	1.0
Australia . .	2	40	3	4	0.6	12.0	1.0	1.2
Total .	2,017	3,685	426	605	5.0	8.8	1.1	1.4

The value of liquor consumed may be summed up as follows :—

		Million £
2,007 million gallons wine (20d.) . . .	167
3,685 ,, ,, beer, &c. (16d.) . .	240
420 ,, ,, spirits (48d.). . .	85
Total	492

Liquor Consumption in United Kingdom per Annum

	Millions of Gallons				Gallons per Inhabitant			
	Wine	Beer and Cider	Spirits	Equivalent in Alcohol	Wine	Beer and Cider	Spirits	Equivalent in Alcohol
1700-20	3	390	3	21	0.3	43	0.3	2.32
1720-50	3	530	6	30	0.3	53	0.6	3.00
1760-80	4	560	4	31	0.3	51	0.3	2.76
1790-1800	6	370	6	23	0.4	27	0.4	1.63
1810-20	5	490	10	31	0.3	26	0.5	1.61
1830-50	6	670	23	47	0.2	26	0.9	1.79
1850-70	11	810	28	57	0.3	27	1.0	1.91
1871-80	16	1,005	34	70	0.5	30	1.0	2.10
1886-88	14	1,020	34	71	0.4	27	0.9	1.88

On this subject G. R. Porter (1843) gives good reasons that the consumption of alcohol affords no evidence as to intemperance. This is confirmed by the fact that, although convictions for drunkenness per 1000 inhabitants are much higher in Ireland than in England, the consumption of alcohol is one-third less. The consumption of liquor in 1885 was as follows :—

	Gallons, Millions				Gallons per Inhabitant			
	England	Scotland	Ireland	United Kingdom	England	Scotland	Ireland	United Kingdom
Beer . . .	880	48	80	1,008	32	16	16	28
Cider . . .	12	...	...	12	0.4	...	...	0.3
Spirits . .	23	7	5	35	0.8	1.9	1.0	0.9
Wine . . .	12	1	1	14	0.5	0.5	0.2	0.4
Equivalent in alcohol }	59	6	7	72	2.13	1.60	1.40	2.00

See *Beer, Cider, Spirits, Wine,* under their proper titles.

United States

The returns of the Excise Department show consumption as follows :—

Year	Million Gallons				Gallons per Inhabitant			
	Spirits	Wine	Beer	Equivalent in Alcohol	Spirits	Wine	Beer	Equivalent in Alcohol
1840	43	5	23	24	2.5	0.3	1.4	1.38
1850	52	6	37	29	2.2	0.3	1.6	1.24
1860	90	11	101	52	2.9	0.4	3.2	1.70
1870	80	12	204	50	2.1	0.3	5.3	1.38
1880	64	28	413	58	1.2	0.6	8.3	1.14
1889	81	34	780	87	1.3	0.5	13.0	1.31

The above does not include cider, the consumption of which may reach 20 million gallons yearly, or one-third of a gallon per head. This would make the total consumption of alcohol about 1.34 per inhabitant, against 1.88 in the United Kingdom.

France

The annual consumption of wine, beer, and spirits has been as follows :—

Year	Million Gallons				Gallons per Inhabitant			
	Wine	Beer	Spirits	Equivalent in Alcohol	Wine	Beer	Spirits	Equivalent in Alcohol
1810-12	447	56	7	52	16	2	0.3	1.80
1830-32	484	62	8	55	16	2	0.3	1.80
1840-42	766	96	11	88	23	3	0.4	2.50
1850-52	882	110	14	101	25	3	0.4	2.70
1860-62	655	140	19	83	18	4	0.5	2.10
1870-72	940	155	22	113	25	5	0.6	2.80
1880-82	805	190	34	107	21	6	0.9	2.60
1886-88	750	200	40	105	19	6	1.1	2.50

The above does not include cider, of which 200 million gallons are consumed yearly. See *Wine, Beer,* &c.

The French Government publishes the following table of the production and consumption of alcohol :—

Year	Gallons Produced	Value, £	Pence per Gallon	Gallons Consumed	Gallons per Inhabitant
1850	20,700,000	2,150,000	25	12,800,000	0.32
1860	19,100,000	2,870,000	36	18,700,000	0.50
1870	27,300,000	2,840,000	25	19,400,000	0.51
1880	34,800,000	4,480,000	31	28,800,000	0.80
1885	40,900,000	3,580,000	21	31,700,000	0.85

Expenditure on Alcoholic Liquors

	Millions Sterling					Amount per Inhabitant
	Wine	Beer	Cider	Spirits	Total	
						£ s. d.
United Kingdom . .	3	68	1	7	79	2 2 0
France	63	13	8	8	92	2 8 0
Germany	10	59	...	12	81	1 14 0
Russia	4	5	...	14	23	0 5 6
Austria	17	17	...	6	40	1 1 0
Italy	37	2	...	2	41	1 8 0
Spain and Portugal .	37	...	...	1	38	1 15 0
Sweden and Norway .	1	3	...	6	10	1 9 0
Belgium	1	11	...	2	14	2 7 0
Holland	1	3	...	2	6	1 7 0
United States . . .	3	42	1	19	65	1 1 0
Total . .	177	223	10	79	489	1 5 0

The foregoing values are " in bond," that is, in first hands, and exclusive of duties, which come under the head of taxation. See *Wine, Beer, Drunkenness.*

AMPHITHEATRES

The first, of stone, was built by Statilius for the Emperor Augustus, in the Campus Martius, Rome. The Colosseum, begun by Vespasian, was finished by Titus, A.D. 80, and held 100,000 spectators.
The dimensions of the principal amphitheatres were :—

Colosseum	615 × 510 feet
Verona	513 × 410 ,,
Vienne . . .	508 × 436 ,,
Pozzuoli . . .	480 × 382 ,,
Arles	460 × 338 ,,
Limoges . . .	450 × 378 ,,
Nismes	437 × 332 ,,
Pompeii	430 × 335 ,,

The height ranged from 60 to 100 feet, except the Colosseum, which was 164 feet high.

ANATOMY

Blood.—An adult has ordinarily 28 lbs. of blood, and at each pulsation the heart sends 10 lbs. through the veins and arteries. The pulsations are 120 per minute in infancy, 80 in manhood, 60 in old age, and rather more in women than in men.

The components of human blood are :—

	Man	Woman
Water	77.8	79.6
Albumen . . .	6.2	6.4
Colour . . .	14.1	12.2
Saline, &c. . .	1.9	1.8
	100.0	100.0

Human blood compares with that of the brute creation as follows :—

	Man	Ox	Sheep	Dog	Pig	Chicken
Chlor. of sod.	53.5	46.7	57.1	50.5	41.3	50.3
Soda . . .	4.2	21.9	13.3	3.9	7.6	14.3
Potash . . .	12.0	7.0	5.3	17.2	22.2	4.4
Lime . . .	1.7	0.8	1.0	0.4	1.2	1.0
Magnesia . .	1.0	0.4	0.3	2.5	1.2	0.8
Oxide of iron	8.3	7.0	8.7	10.7	9.1	9.1
Phosph. acid .	10.2	4.2	5.2	12.8	12.3	13.4
Sulph. . . .	1.7	1.2	1.7	1.4	1.7	4.1
Carbon . .	1.2	6.0	7.0	0.5	0.7	...
Sundries . .	1.2	4.8	0.4	0.1	2.7	2.6
Total .	100.0	100.0	100.0	100.0	100.0	100.0

The temperature of human blood averages as follows (Fahrenheit) :—

Good health . . . . 98.6 | Strong fever, morning 102.2
Fever . . . . . 101.3 | ,, ,, afternoon 104.0

The following table shows the temperature of man compared with some of the brute creation : *—

Snail 76	Cat 102
Oyster . . . 82	Ox 102
Man 98½	Monkey . . . 104½
Horse 99½	Sheep . . . 104½
Porpoise . . . 100	Hog . . . 105
Rat 102	Chicken . . . 111

The quantity of iron in blood is shown thus :—

	Grammes per Ton	Oz. per Cwt.		Grammes per Ton	Oz. per Cwt.
Man . .	510	0.91	Pig . . .	590	1.06
Ox . . .	560	1.00	Frog . . .	420	0.75

According to the *Dic. Sci. Med.*, the dimensions of the globules of blood, in parts of a millimetre, are :—

Goat 0043	Ape 0071
Sheep 0048	Duck 0074
Horse 0055	Man 0077
Ox 0058	Fish 0084
Pig 0063	Elephant 0095
Hare 0070	Tortoise 0117
Goose 0070	Frog 0133
Dog 0070	Snake 0188

A human adult has half an ounce of sugar in his blood, which is proportionately more than a sheep and less than a cow.

Brain.—The latest classification of races, according to Bastian and other experts, shows weight of brain as follows :—

	Oz.		Oz.
Scotch . . .	50.0	Pawnees . . .	47.1
Germans . .	49.6	Italians . . .	46.9
English . . .	49.5	Hindoo . . .	45.1
French . . .	47.9	Gypsy . . .	44.8
Zulus . . .	47.5	Bushmen . .	44.6
Chinese . .	47.2	Esquimaux . .	43.9

* For a complete alphabetical list, see *Animals.*

Compared with size of body, the brain of the Esqui- maux is as heavy as the Scotchman's.

The measurement of that part of the skull which holds the brain is stated in cubic inches thus :—

Anglo-Saxon . . 105	Ancient Egyptian . . 93
German . . . 105	Hottentot . . . 58
Negro 96	Australian native . . 58

In all races the male brain is about 10 per cent. heavier than the female. The highest class of apes has only 16 oz. of brain.

After the age of 50 the brain loses an ounce every 10 years. Cuvier's weighed 64, Byron's 79, and Cromwell's 90 ounces, but the last was diseased. Post-mortem examinations in France give an average of 55 to 60 ounces for the brains of the worst class of criminals.

Hair.—The number of hairs on an adult's head usually ranges from 129,000 to 150,000.

Nervous System

	Infants	Youths	Adults	Aged Persons	Idiots
Water . .	82.8	74.3	72.5	73.9	70.9
Albumen . .	7.0	10.2	9.4	8.6	8.4
Fat . .	3.5	5.3	6.1	4.3	5.0
Salts, &c. .	5.9	8.6	10.2	12.2	14.8
Phosphorus .	0.8	1.6	1.8	1.0	0.9
Total .	100.0	100.0	100.0	100.0	100.0

Respiratory System.—The quantity of carbonic acid exhaled in twenty-four hours is as follows :—

Person	Age	Oz. Exhaled	Person	Age	Oz. Exhaled
Girl . . .	10	9	Boy . . .	16	16
Boy . . .	10	10	Man . . .	28	17
Woman . .	19	12			

The quantity varies according to exertion, viz. :—

	Oz. per Hour		Oz. per Hour
Sleeping	0.6	Riding	4.0
Walking 2 miles per hr.	2.1	Swimming . . .	4.4
,, 3 ,, ,,	3.0	Treadmill	5.5

Sight. — Experiments for the British Association, in 1889, gave the following result :—

	Judgment of Eye in Dividing a Line into Halves		Judgment of Eye in Estimating an Angle of 90 Degrees	
	Males	Females	Males	Females
Correct . .	35.6	45.5	63.0	33.7
Incorrect .	64.4	54.5	37.0	66.3
Total	100.0	100.0	100.0	100.0

The colour of the eyes was as follows :—

	Males	Females
Light	44.6	34.2
Medium . . .	43.1	45.1
Dark	12.3	20.7
Total .	100.0	100.0

Sleep.—The *Dic. Sci. Med.* mentions many cases of forty days and upwards.

Sweat.—It has been analysed by Funke and Schottin thus :—

	Funke	Schottin
Water . . .	98.84	97.74
Salt . . .	44	70
Other solids . .	72	1.56
Total .	100.000	100.000

Krause says an adult perspires 800 grammes, that is, 28 oz. in twenty-four hours. Funke states the quantity of sweat thrown off by an adult as follows :—

Tempera-ture, Shade (Fahr.)	Condition	Oz. per Hour	ercentage of Solid Matter
64	Walking in a room . .	1.2	2.56
68	Walking in a room . .	1.7	1.70
66	Walking quickly in a room	2.6	1.17
55	Walking out of doors . .	4.7	0.79
80	Walking in the sun . .	11.3	0.84
77	Running in the sun . .	13.7	0.82
88	Running in the sun . .	18.0	0.86

Urine.—Harley says that the urine of males and females, age 25, weight 154 lbs., will be found to average thus, in grammes :—

	Men	Women
Organic matter . . .	36.6	31.5
Inorganic matter . . .	16.4	13.5

The temperature is the same as that of the blood. The composition varies with race, viz. :—

	Grammes	
French .	. . . 39.5	of solid matter
English .	. . . 53.0	,, ,,
German .	. . . 67.8	,, ,,

A man in good health, weight 140 lbs., secretes 49 oz. in twenty-four hours ; a woman 35 oz. Children emit 50 per cent. more for their weight than adults. Food has a direct influence. Lehmann says that 100 oz. of animal food, such as eggs, give 97 oz. of urine, and 100 oz. of vegetable food only 74 of urine.

Weight.—Banting gives the following scale of normal weights for height :—

Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.
61	... 120	64	... 136	67	... 148	70	... 169
62	... 126	65	... 142	68	... 155	71	... 174
63	... 133	66	... 145	69	... 162	72	... 178

Detailed tables on this subject will be found under *Anthropometry.*

ANIMALS

The temperature of the animal creation, in Fahrenheit, is as follows :—

Ape 104	Guinea-pig . 100	Porpoise . . 100
Bat 100	Hare . . . 100	Rabbit . . . 100
Cat 102	Hen. . . . 108	Rat 102
Chicken . . 111	Hog . . . 105	Serpent . . 88
Crow . . . 109	Horse . . . 99	Shark . . . 77
Dog. . . . 102	Jackal . . . 101	Sheep . . . 104
Donkey . . 98	Jackdaw . . 107	Snail . . . 76
Duck . . . 111	Man . . . 99	Sparrow . . 108
Elephant . . 100	Monkey . . 104	Squirrel . . 102
Elk 103	Ox 102	Tiger . . . 99
Fox 102	Oyster . . . 82	Turkey . . . 109
Glow-worm . 74	Panther . . 102	Woodcock . 108
Goat . . . 104	Parrot . . . 106	Wolf . . . 105
Goose . . . 107	Petrel . . . 104	...
Guinea-fowl . 111	Pigeon . . . 109	...

A draught horse usually weighs 1100 lbs.

The period of gestation among animals is as follows :—

	Days		Days		Days		Days
Rabbit	. 30	Pig .	. 120	Bear .	. 180	Mare	. 342
Cat	. 55	Lion	. 150	Monkey	210	Camel	. 365
Dog	. 63	Sheep	. 150	Cow .	. 282	Ass .	. 385
Wolf	. 90	Goat	. 153	Buffalo	. 308	Elephant	730

The longest span of life belongs to whales, say 500 years ; eagles, say 200 ; alligators about 300, and elephants from 100 upwards. The age of toads is said often to exceed any of the foregoing.

	Weight (Lbs.)	Years of Life		Weight (Lbs.)	Years of Life
Rabbit .	5	5	Cow .	750	25
Dog .	40	15	Ox . .	900	25
Sheep .	70	12	Horse .	1,000	27
Pig .	160	10	Camel .	1,200	40
Lion .	500	40	Elephant	6,000	100

The limits of animal life are not precisely fixed. Hooker found animal life in thermal springs of 208 Fahr., that is, 4 degrees below boiling-point ; and again at minus 70° centigrade, equal to 92 degrees below zero Fahrenheit.

Ape.—The cranium compares with that of man in dimensions as follows (man 100) :—

Male gorilla . 35	Male ourang . 29	Male chimpanze . 28
Female gorilla 31	Female ourang 28	Female chimpanze 27

Camel.—A camel has twice the carrying power of an ox ; with a load of 400 lbs. he can travel twelve or fourteen days without water, going forty miles a day. They are fit to work at five years old, but their strength begins to decline at twenty-five, and they live till forty. The Tartars have herds of 1000 or more. The patriarch Job had 3000. The Timbuctoo or Meharri breed is used only for couriers, going 800 miles in eight days, with a meal of dates or grain at nightfall. Napoleon conveyed 1500 infantry on camels across the desert from Cairo to St. Jean d'Acre. The caravans from Berber to Suakim use camels carrying 600 lbs., which travel three miles an hour, and earn one penny (English) per mile. These camels are sold from £5 to £20 each ; very fine ones fetch up to £40 sterling.

Cat.—The number of cats in the United Kingdom is fully seven millions, although a remarkable decrease has been noticed in seaports, owing to exportation. They came into England before the Conquest, for the tariff of indemnity, in the 10th century, valued them at twopence, being equal to two hens or two gallons of beer. Southey mentions that the first settlers in Brazil paid £300 for a cat, and for kittens, their weight in gold-dust. An offer of £500 for a Persian cat at the Sydenham Cat Show in 1869 was refused.

Dogs

	Number Licensed	Per 1000 Inhabitants
Great Britain . . .	1,128,000	38
Ireland	368,000	73
France	2,864,000	75
Germany . . .	1,432,000	31
Sweden	513,000	11

The largest known is a St. Bernard dog, Plinlimmon, exhibited at Birmingham 1886 : weight, 214 lbs. ; height, 35 inches at shoulder.

Sheep-dogs are not taxed in the United Kingdom, and the total number of dogs in the kingdom is at least 2,000,000, say 55 per 1000 inhabitants, worth £800,000. It is found that 100 male dogs go mad as compared with 14 female. A dog accidentally locked up at Metz passed thirty-nine days without food, and recovered.

The number of hunting dogs in the United Kingdom is as follows :—

	England	Ireland	Scotland	United Kingdom
Stag-hounds .	604	246	...	850
Fox-hounds .	12,865	1,522	660	15,048
Harriers . .	3,258	1,516	...	4,774
Beagles . . .	448	...	74	522
Total .	17,176	3,284	734	21,194

The weight of brain in drachms is as follows :—

Sheep-dog . 29.5	Retriever . . 25.7	Greyhound . 23.4
Fox-hound . 29.2	Collie . . 25.4	Terrier . . 20.0
Setter . . . 26.1	Bulldog . . 24.0	Spaniel . . 18.1
Mastiff . . 26.1	Newfoundland 24.0	Lapdog . . 18.0

As compared with the above, the wolf has 42, the jackal 15, the fox 13, and some classes of apes 120 drachms.

Elephant.—The ivory found on an ordinary elephant is 120 lbs., worth £60, and it is necessary to kill 12,000 yearly to supply 650 tons of ivory to the English market, of which Sheffield consumes one-third. A tusk weighing 162 lbs. was shown at London in 1851, but Gordon Cumming since got one of 173 lbs. Tame elephants have risen in price in India, from £45 in 1835, ranging at present between £150 and £800.

The demand for ivory threatens to exterminate elephants in Africa. Stanley calculates the consumption of ivory at 75,000 lbs. a year in Europe, 13,000 in India, and 7000 in United States; that is, 95,000 lbs. a year.

Kangaroo.—In 1888 the total number in Australia was 1,170,000, having diminished notably in the last ten years. A kangaroo consumes as much grass as six sheep; for this reason the farmers destroy them.

Llamas.—There are four millions in Peru, mostly employed as beasts of burden. The skin weighs 6 lbs., gives 18 feet of leather, and is worth 20s.

Reindeer.—Official returns are :—

	Herds	Head of Deer	Average
Finland . . .	2,822	44.400	15
Norway . . .	2,400	101,800	43
Sweden . . .	3,200	220,800	65
Total . .	8,422	367,000	44

They can travel with a sleigh 130 miles a day, and are worth usually 30s. a head.

Squirrels.—There are 25 millions killed annually in Russia for their skins. See *Hunting.*

Turtle.—A good-sized one gives 80 lbs. of tortoiseshell.

ANTHROPOMETRY

The average height of male adults, according to Topinard, is as follows :—

	Inches		Inches		Inche
Laplanders .	60.7	Caucasians .	65.0	Danes . .	66.2
Bushmen .	62.0	Hindoos . .	65.0	Irish . .	67.0
Malays . .	63.1	Esquimaux .	65.0	English . .	67.4
Peruvians .	63.1	Berbers . .	65.0	Scotch . .	67.4
Burmese . .	63.4	Russians . .	65.4	Swedes . .	67.4
Fins . . .	63.8	Kirghese . .	65.4	Kaffirs . .	67.8
Araucans .	63.8	Fuegians . .	65.4	Iroquois . .	68.2
Chinese . .	64.2	Germans . .	66.2	Polynesians .	69.5
Magyars . .	64.2	Arabs . .	66.2	Patagonians	70.3
Jews . . .	64.6	Charruas . .	66.2	Average . .	65.6
French . .	65.0	Belgians . .	66.2		

HEIGHT AND WEIGHT OF ENGLISH, BELGIANS, AND AMERICANS

	A.—Height in Inches				B.—Weight in Lbs.			
			Belgian				Belgian	
Age	English Male	American Male	Male	Female	English Male	American Male	Male	Female
10	51.8	51.7	50.1	49.2	67	66	56	51
15	62.2	62.3	59.6	58.6	103	105	91	88
20	67.5	67.4	65.8	62.0	143	147	131	117
24	67.7	67.9	66.2	62.1	148	147	146	123
30	67.9	68.1	66.4	62.2	156	150	146	122

Height is without shoes, but weight includes clothing.

Dr. Gould's measurement of men in the United States army (1863) gave the following table of average :—

Age	Natives of									
	United States	Canada	England	Ireland	Scotland	France	Germany	Scandinavia	Spain	Average
18–20 . . .	67.0	66.2	66.0	66.1	66.3	65.7	65.9	66.7	65.5	66.1
20–22 . .	67.9	67.0	66.5	66.7	67.0	66.2	66.6	66.7	66.1	66.8
22–24 . .	68.2	67.4	66.8	67.0	67.2	66.7	66.9	67.5	66.2	67.1
24–26 . .	68.2	67.5	66.9	67.1	67.4	66.6	66.8	67.8	66.3	67.2
26–28 . .	68.3	67.5	67.0	67.2	67.3	66.7	66.8	67.6	66.4	67.2
28–30 . .	68.4	67.5	67.0	67.2	67.5	66.7	66.8	67.4	66.0	67.2
Over 30 . .	68.4	67.5	66.9	67.1	67.6	66.7	66.8	67.4	66.3	67.2
Average . .	67.8	67.1	66.7	67.0	67.3	66.5	66.7	67.3	66.1	67.0

The above measurement comprised great numbers of men ; Irish alone 83,000.

AVERAGE HEIGHT OF MEN IN EUROPEAN ARMIES (1860)

	Inches		Inches		Inches
Italian . .	65.0	Austrian . .	66.5	Irish . . .	68.0
Spaniard . .	65.5	Belgian . .	66.9	Scotch . .	68.5
French . .	66.0	Russian . .	67.0	Swede . .	68.9
Hungarian .	66.1	English . .	67.5	Norwegian .	69.0

HEIGHT OF CHILDREN IN VARIOUS COUNTRIES (INCHES)

Age	Manchester		Brussels		Boston		Turin		Bordeaux		Average	
	Cowell, 1860		Quetelet, 1870		Bowditch, 1877		Pagliani, 1876		Leyet, 1882			
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
5	...	...	39.0	38.2	41.8	;1.4	38.2	38.2	41.4	...	40.1	39.3
6	...	...	41.4	40.6	43.9	43.5	41.0	40.2	42.6	...	42.2	41.4
7	...	...	43.3	42.9	45.7	45.7	44.5	42.9	45.0	...	44.6	43.8
8	...	...	45.7	44.8	47.4	47.4	46.5	45.7	47.4	47.8	46.7	46.4
9	48.5	48.1	47.8	46.9	49.6	49.2	48.9	47.7	48.9	49.4	48.7	48.3
10	50.5	49.5	50.0	49.2	51.7	51.3	49.7	50.1	50.9	50.9	50.5	50.2
11	51.3	51.7	52.5	51.3	53.2	53.6	51.3	52.1	52.1	52.9	52.1	52.3
12	53.2	53.6	54.4	53.2	55.2	56.0	53.6	54.0	54.8	55.2	54.2	54.4
13	54.8	55.6	56.0	55.2	57.6	58.8	55.2	56.4	56.4	58.0	56.0	56.8
14	56.7	57.9	58.0	57.2	59.9	60.3	57.2	59.2	58.0	60.4	58.0	59.0
15	59.1	58.7	59.5	58.7	62.2	61.0	59.9	60.3	...	...	60.2	59.7
16	62.2	59.5	61.1	59.9	65.0	61.4	62.2	60.6	...	...	62.6	60.3
17	63.8	60.7	62.6	61.1	66.2	61.8	63.0	61.0	...	...	63.9	61.2

LENGTH AND WEIGHT OF NEW-BORN INFANTS (DUNCAN)

Mother's Age	Length, Inches			Weight, Lbs.		
	Boys	Girls	General	Boys	Girls	General
Under 20 .	19.9	19.7	19.8	7.1	6.8	7.0
20 to 30 .	20.1	19 9	20.0	7.3	7.0	7.2
30 to 40 .	20.2	20.0	20.1	7.4	7.2	7.3
40 to 45 .	20.3	20.1	20.2	7.3	7.3	7.3
Over 45 .	19.7	19.8	19.8	6.6	7.0	6.8

An infant weighing 7 lbs. at birth will weigh 7½ lbs. on the tenth day, and 11 lbs. on the 30th day.

HEIGHT AND WEIGHT OF BELGIAN INFANTS AND ADULTS (QUETELET)

Age	Height, Ins.			Weight, Lbs.		
	Males	Females	General	Males	Females	General
Under 1 year .	27.6	27.2	27.4	19.8	18.0	18.9
1–2	31.1	30.7	30.9	24.2	24.2	24.2
2–3	33.9	33.5	33.7	27.5	27.3	27.4
3–4	36.7	36.3	36.5	30.8	30.6	30.7
4–5	38.6	38.2	38.4	35.0	33.6	34.3
5–6	41.4	40.6	41.0	39.2	37.0	38.1
6–8	45.8	45.0	45.4	47.5	41.8	44.7
8–10	50.2	49.4	49.8	55.4	50.8	53.1
10–12	54.4	53.2	53.8	63.8	63.8	63.8
12–14	58 0	57.2	57.6	81.6	79.8	80.7
14–16	61.2	60.0	60.6	99.9	95.7	97.8
16–18	64.4	61.6	63.0	118.6	109.6	114.1
18–20	66.0	62.0	64.0	130.9	117.0	124.0
20–22	66.0	62.0	64.0	138.4	119.6	129.0
22–25	66.4	62.4	64.4	145.6	119.6	132.6
25 30	66.8	62.4	64.6	145.4	121.6	133.5

DISTINCTION OF CLASSES (ENGLAND)

Age	Height, Ins.				Weight, Lbs.			
	Affluent	Artisan	Farm Labourer	Male Pop.	Affluent	Artisan	Farm Labourer	Male Pop.
10 . . .	52.9	50.7	50.9	51.8	69	64	67	67
15 . . .	62.9	61.4	61.8	62.2	107	96	101	103
20 . . .	68.3	66.5	66.9	67.5	146	136	144	143
24 . . .	68.4	66.6	67.5	67.7	148	143	152	148
30 . . .	68.5	66.8	67.6	67.9	160	149	158	156
40 . . .	68.7	67.1	67.6	68.0	170	154	161	164
50 . . .	68.1	66.6	67.8	67.9	172	149	166	164
60 . . .	68.1	66.5	68.0	67.7	170	138	171	162

Age	Artisan	Criminal	Farm Labourer	Male Pop.	Artisan	Criminal	Farm Labourer	Male Pop.
20–25 . .	66.5	65.2	67.2	67.6	139	137	150	146
25–35 . .	66.8	65.7	67.5	67.8	147	140	157	152
35–45 . .	67.0	65.7	67.5	68.0	154	141	161	164
45–55 . .	66.6	65.8	67.8	67.9	149	143	166	164
General average }	66.6	65.6	67.5	67.7	147	140	158	158

Rural population is usually taller and heavier than that of towns. In Scotland agricultural males are 4 inches and 36 lbs. over the average of Glasgow and Edinburgh. The fishing population of Yorkshire exceeds the Sheffield artisans by 3 inches and 24 lbs. On the other hand, London is 1½ inch and 8 lbs. over the population of Hertfordshire; and Quetelet observed the same in Belgium, which he ascribed to better food in the towns.

GROWTH OF MALE CONVICTS IN ENGLISH JAILS (DANSON)

Age	Height, Inches		Weight, Lbs.	
	1858	1878	1858	1878
18 . . .	64.3	64.1	122	125
20 . . .	65.2	65.1	133	137
22 . . .	66.2	65.7	139	142
24 . . .	65.9	65.4	142	141
26 . . .	66.2	65.6	142	143
28 . . .	66.7	65.7	143	144
30 . . .	66.4	65.5	142	144

GROWTH OF BOYS AND MEN (ENGLAND)

The following table is from the Anthropometric Report, British Association, 1883, the result of measurement of 10,000 males :—

Age	Height, Ins.	Weight, Lbs.	Chest, Ins.	Strength of Arm, Lbs.	Average Ann. Increase			
					Height, Ins.	Weight, Lbs.	Chest, Ins.	Strength, Lbs.
11	55	79	27	38	1.5	4.8	0.2	...
12	57	85	27	39	2.1	6.2	0.2	1.8
13	59	92	28	46	1.8	6.7	0.7	6.3
14	61	102	29	53	2.2	10.6	1.0	7.1
15	64	114	30	60	2.3	12.2	1.2	7.6
16	66	129	32	69	2.6	15.2	2.0	8.9
17	68	142	34	80	1.6	12.2	1.5	11.0
18	68	146	34	86	0.4	4.8	0.5	6.0
19	68	148	35	90	0.3	2.0	0.2	2.0
20	69	152	35	88	0.5	3.9	0.6	3.9
21	69	153	35	88	...	0.4	0.1	...
22	69	153	35	93	0.1	...	...	4.5
23–50	69	155	36	97	0.1	1.8	0.5	4.7

GROWTH OF MALES IN TOWNS AND RURAL DISTRICTS (ENGLAND)

Age	Height, Ins.		Weight, Lbs.		Rural Excess	
	Town	Rural	Town	Rural	Ins.	Lbs.
10–13	56	57	73	76	1	3
13–16	63	64	101	106	1	5
16–19	67	67	131	134	...	3
19–22	68	69	143	147	1	4
22–25	67	69	139	153	2	14

GROWTH OF TELEGRAPH GIRLS (ENGLAND)

The following results were obtained by the Committee from 3700 girls :—

Age	Height, Ins.	Weight, Lbs.	Chest, Ins.	Lifting Power, Lbs.	Average Annual Increase			
					Height, Ins.	Weight, Lbs.	Chest, Ins.	Lifting, Lbs.
13	56	79	25	182	...	...	...	...
14	58	85	26	192	2	6	1	10
15	60	90	27	218	2	5	1	26
16	62	108	28	278	2	18	1	60
17	64	116	30	308	2	8	2	30
18	65	127	30	316	1	11	0	8
19	66	130	30	329	1	3	0	13

ITALIAN BOYS AND GIRLS (PAGLIONI)

Age	Weight, Lbs.		Height, Ins.		Drawing Power, Lbs.	
	Boys	Girls	Boys	Girls	Boys	Girls
10	54	60	50	52	146	80
11	57	62	51	53	151	85
12	63	70	53	56	174	115
13	70	82	55	58	209	129
14	73	95	56	61	231	151
15	87	100	59	61	261	152
16	91	101	60	62	266	152
17	95	107	60	62	299	154
18	98	105	61	62	312	155
19	103	...	62	...	330	...

MEN AND WOMEN OF UNITED STATES

The average weight of 20,000 men and women at Boston in 1864, and of 22,000 weighed at Cincinnati in 1882, was as follows :—

	Men	Women
Boston . . .	142 lbs.	125 lbs.
Cincinnati . .	154 ,,	131 ,,

There was no account taken of age. The people of the Western States are evidently much heavier than those of New England, properly known as Yankees.

It is, moreover, to be observed that the above averages for Boston closely coincide with those of Belgium (p. 62), where Quetelet gives 146 lbs. for men, and 122 for women, aged 30 ; but the British Association found an average in England of 155 lbs. for men over 23 years.

ENGLISH MEN AND WOMEN (ROBERTS)

The comparison of weight, strength, &c., with stature, shows :—

Height, Ins.	Weight, Lbs.		Chest, Ins.		Drawing-Bow, Lbs.	
	Men	Women	Men	Women	Men	Women
58	133	114	31	26	68	41
60	138	118	32	27	71	43
62	143	122	33	28	73	44
64	147	125	35	29	76	45
66	152	129	36	30	78	47
68	156	133	37	31	80	48
70	161	137	38	32	83	50
72	166	141	39	33	85	51

BRITISH AND IRISH MALES, STATURE AND WEIGHT

The Anthropometric Committee in 1883 measured 8600 men, of ages from 23 to 50 years, and found as follows :—

	Height					Weight			
Inches	English	Irish	Scotch	U. Kingdom	Pounds	English	Irish	Scotch	U. Kingdom
Under 60	0.9	0.3	0.2	0.7	Under 100	0.5	2.0	0.1	0.4
60–62	3.2	1.1	0.9	2.9	100–120	8.5	3.3	2.4	7.0
62–64	13.7	6.4	5.0	12.4	120–140	34.8	40.1	19.5	32.2
64–66	26.1	26.3	19.1	25.8	140–160	35.2	35.2	43.8	37.2
66–68	29.1	39.0	32.2	29.8	160–180	14.4	15.4	24.2	16.3
68–70	19.8	18.8	25.5	19.9	180–200	4.4	3.6	7.5	4.8
Over 70	7.2	8.1	17.1	8.5	Over 200	2.2	0.4	2.5	2.1
Total	100.0	100.0	100.0	100.0	Total	100.0	100.0	100.0	100.0

The following summary shows that the Irish are a much lighter race than the English, Welsh, or Scotch, and also that they weigh less per inch of stature :—

	Average Height, Ins.	Average Weight, Lbs.	Average, Lbs. per Inch
English . .	67.4	155	2.30
Welsh . .	66.7	158	2.38
Irish . . .	67.9	154	2.27
Scotch . .	68.7	165	2.41
U. Kingdom	67.7	158	2.33

HEIGHT ACCORDING TO CLASSES

Boys 11 to 12 Years	Ins.	Adults 25 to 30 Years	Ins.
Eton and Harrow . .	55.0	Professional class . .	69.1
Middle schools . . .	53.8	Commercial class . .	68.0
Agricultural peasants .	53.0	Farmers.	67.5
Artisans' sons . . .	52.6	Artisans	66.6
Factory boys	51.6	Criminals	66.0
Military orphans .	51.2	Tailors	65.9
Industrial schools . .	50.0	Insane	65.7

The height and weight of factory children of ten to twelve years in England, have increased in the last half century :—

Year	Height, Inches		Weight, Lbs.	
	Boys	Girls	Boys	Girls
1833	50.5	50.4	59	57
1873	50.7	50.8	64	63
Increase	0.2	0.4	5	6

	Ins.	Lbs.
Fellows of the Royal Society average . .	69.5	161
Members of Athletic Associations	68.4	144
Policemen and Fire-brigade	70.1	185
Burglars and other convicts	65.6	140

The low physical type of criminals and insane is remarkable.

HEIGHT OF MALE ADULTS IN VARIOUS COUNTRIES

Inches	Jews	Saxons		Italians	Belgians	Swedes	Dutch	United Kingdom		
	Bavaria	Town	Rural	Conscripts	Militia	Conscripts	Conscripts	English	Irish	Scotch
Under 62	6.4	15.0	14.6	14.0	13.6	1.8	5.2	4.1	1.4	1.1
62–64	20.9	17.8	17.6	20.3	12.1	11.3	10.5	13.7	6.4	5.0
64–66	34.3	29.2	28.4	26.2	26.7	14.0	27.0	26.1	26.3	19.1
66–68	22.8	22.9	23.9	21.2	26.8	37.1	26.1	29.1	39.1	32.2
Over 68	15.6	15.1	16.5	18.3	20.8	35.8	31.2	27.0	26.9	42.6
Total . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The Scotch are by far the tallest in the above table, but are surpassed by the Iroquois Indians, measured by Gould, of whom 54 per cent. exceeded 68 inches.

HEIGHT AND CHEST MEASUREMENT OF BRITISH ARMY (1882)

Inches	Height			Inches	Chest
	Eng-lish	Scotch	Irish		English, Scotch, Irish
Under 66	47.3	45.0	55.3	Under 36	33.5
66–70	41.1	42.6	36.1	36–38	41.8
Over 70	11.6	12.4	8.6	Over 38	24.7
	100.0	100.0	100.0		100.0

Inches	Height of French Conscripts		
	1837–47	1848–57	1858–68
Under 62 . . .	14.0	13.6	11.5
62–64	24.1	25.3	26.6
64–66	33.2	32.6	32.2
66–68	21.9	21.8	22.7
Over 68	6.8	6.7	7.0
Total . .	100.0	100.0	100.0

Inches	Height of Dutch Conscripts		
	1866–71	1872–77	1878–83
Under 62 . . .	9.3	7.6	5.7
62–64	13.9	12.9	11.6
64–68	52.0	53.5	53.9
Over 68	24.8	26.0	28.8
Total . .	100.0	100.0	100.0

The improvement of stature in Holland is ascribed to better food, resulting from the abolition of the Grist-tax, and to sanitation of cities. It is further observed that in swampy provinces 8½ per cent. of the young men drawn for military service are rejected for being under 62 inches, and in the rest of the kingdom only 5 per cent.

HEIGHT OF SWEDISH CONSCRIPTS

Period	Average Ins.	Period	Average Ins.
1841–50 . . .	66.0	1861–70 . . .	66.6
1851–60 . . .	66.2	1871–75 . . .	66.7

The improvement in Sweden is likewise ascribed to better food.

COMPLEXION OF PERSONS (UNITED KINGDOM)

Hair	England			Scotland			Ireland		
	Gen. Pop.	Criminals	Insane	Gen. Pop.	Criminals	Insane	Gen. Pop.	Criminals	Insane
Light . . .	43	42	44	47	45	49	52	47	52
Red	6	5	4	7	5	3	6	4	7
Dark . . .	51	53	52	46	50	48	42	49	41
Total .	100	100	100	100	100	100	100	100	100
Eyes									
Light . . .	66	60	65	76	67	80	72	67	83
Dark . . .	34	40	35	24	33	20	28	33	17
Total .	100	100	100	100	100	100	100	100	100

DIFFERENCE OF SEXES (EUROPE)

	Male	Female		Male	Female
Height . .	100	94	Skull . . .	100	88
Size . . .	100	93	Brain . . .	100	91
Weight . .	100	84	Strength . .	100	67

ARMS

Artillery.—The first piece of cannon was invented by Friar Schwartz in 1330, and the Moors used artillery at Cordoba in 1343. The English had four pieces at Crecy in 1346; the Venetian fleet used artillery against the Genoese in 1377. Mortars for bombs were cast in England in 1543, having been invented at Naples in 1435. Petards were first used by the Huguenots in 1579. The most famous pieces of cannon have been :—

Date	Name	Place	Tons	Feet	Bore, Ins.
1430	Dulle Griete .	Holland .	14	...	...
1450	Mons Meg .	Edinburgh	6	13	20
1464	Mahomet .	Turkey .	20	...	...
1540	Carlos Quinto	Dover . .	...	24	...
1548	Malik Mydan	India . .	40	...	23
1550	Simon . . .	Cologne .	...	19	18
1586	Pooshka . .	Moscow .	39	...	...
1856	Horsfall . .	Liverpool	22	16	...
1874	Infant . . .	Woolwich	80	27	...
1880	Armstrong .	Newcastle	100	...	12
1889	Krupp . . .	Essen . .	130	44	16

The cannon of the Middle Ages was as follows :—

Name	Shot, Lbs.	Powder, Lbs.	Gun, Cwts.	Length, Feet
Cannon	64	32	72	12
Serpentine . . .	52	26	62	12
Culverin	19	15	40	12
Demi-culverin . .	10	8	20	10
Falcon	2	2	6	7

The cannon used at Trafalgar (1805) were :—

Pounder	Inch	Gun, Cwts.	Powder, Lbs.
3	3.9	7	1.0
6	3.7	22	1.3
12	4.6	34	4.0
18	5.3	42	6.0
24	5.8	50	8.0
32	6.4	52	10.0

None of the above carried over 2000 yards. The artillery now in use (1889) may be classified thus :—

Inches Bore	Gun, Tons	Shot, Lbs.	Powder, Lbs.	Initial Velocity, Feet per Second	Muzzle Energy, Foot-Tons	Penetration, Ins. at Muzzle
7	4½	112	22	1,325	1,400	7
8	9	175	35	1,384	2,300	9
9	12	253	50	1,440	3,600	11
10	18	406	70	1,379	5,400	13
11	25	543	85	1,360	7,000	14
12	35	706	140	1,390	9,500	16
16	80	1,700	450	1,590	29,000	25
16	100	2,000	550	1,700	40,000	27
16	111	1,800	960	2,104	...	36
16	119	2,028	846	2,000	...	...
16	130	2,600	700	...	...	...

The progress of artillery science since 1837 has been as follows :—

1859. Armstrong's breech-loading rifle-gun, charge only 5 lbs., sent a shot 5 miles.

1861. Richard Gatling, of North Carolina, patented his gun, firing 200 shots a minute ; it now fires 400.

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1862. Armstrong's smooth-bore, charge 40 lbs., sent a 300-lbs. shot through a 5-inch wrought-iron plate.

1866. Woolwich 9-inch rifle, charge 4 3 lbs., sent a 250-lbs. Palliser shot through an 8-inch plate.

1872. First Woolwich Infant, 35 tons, shot 700 lbs., powder 120 lbs.. It sent a Palliser shot through 18½ inches iron and 12 of teak.

1874. Second Woolwich Infant, 80 tons, shot 1650 lbs., powder 300 lbs.

1876. Third Woolwich Infant, 81 tons, shot 1250 lbs., went through 50 feet of sand.

1876. Armstrong 100-ton guns, broke 22-inch Creusot steel plates.

1879. Shot from 9-inch gun, 75 lbs. powder, unable to pierce a 12-inch plate of iron and steel, alternate layers.

1880. Result of Krupp's experiments at Meppen :—

Gun	Inch	Shot, Lbs.	Penetra- tion	Foot- Tons
Krupp . .	9½	348	18.1	8,630
British . .	11½	812	17.9	12,260

Krupp's shot penetrated 18-inch plates ; the British did not.

1889. Krupp's cast steel 130-ton gun has a range of 12 miles, and fires two shots per minute ; each shot costs £300 sterling, and weighs 2600 lbs., going through 19 inches of armour ; charge of powder, 700 lbs.

Down to 1876, Mr. Krupp had delivered 15,000 cannons from his factory to different nations. Great Britain sometimes manufactures two million shot and shell in a year, weighing 20,000 tons of iron. The cost of heavy guns is as follows (1882), per ton :—

Cast iron .	£21	Krupp . . .	£150
Armstrong .	100	Whitworth . .	175

During the siege of Sebastopol, 1855, the Allies threw 30,000 tons of shot and shell into that place.

The cannon in various countries may be summed up thus (those in fortifications, &c., being approximately) :—

	Army	Navy	Forts, &c.	Total
Great Britain . . .	70	3,087	2,000	5,789
France	2,060	2,834	2,800	7,694
Germany	1,486	570	3,324	5,380
Russia	1,540	836	2,048	4,424
Austria	850	320	1,000	2,170
Italy	700	480	500	1,680
Spain	416	525	300	1,241
Portugal	132	178	110	420
Holland	220	560	120	900
Belgium	204	...	120	324
Denmark	120	245	170	535
Sweden and Norway	300	672	100	1,072
Greece	120	70	110	300
Roumania	312	36	94	442
Turkey	1,188	200	2,374	3,762
Europe	10,350	10,613	15,170	36,133
United States . . .	100	1,055	3,000	4,155
Brazil	50	166	200	416
Japan	120	149	100	369
The World	10,620	11,983	18,470	41,073

RIFLES

	Maker	Weight, Lbs.	Calibre	Rounds
England . .	Lee-Mitford	9.4	.303	8
France . .	Lebel	9.2	.315	8
Germany .	Mauser	9.5	.310	5
Austria . .	Mannlicher	10.2	.315	5
Italy . . .	Vetterli	10.6	.409	5
United States	Lee	...	.433	5
Belgium . .	Mauser	9.5	.310	5
Turkey . .	Mauser	...	.433	8
China . .	Lee	...	.433	5

The competition for the Elcho Shield in twenty-four years shows the following score :—

			Average	Highest
England .	.	.	1,345	1,642
Ireland .	.		1,540	1,652
Scotland .	.	.	1,280	1,510

ARMY

	Peace Footing (1889)					Artillery Guns	War Footing
	Cavalry	Infantry	Artillery	Engineers, &c.	Total		
Great Britain . . .	17,000	140,000	34,000	19,000	210,000	702	606,000
France . . .	77,000	327,000	77,000	74,000	555,000	2,060	1,315,000
Germany	67,000	341,000	62,000	22,000	492,000	1,486	1,492,000
Russia	109,000	579,000	62,000	50,000	800,000	1,540	1,720,000
Austria	48,000	193,000	30,000	52,000	323,000	850	1,150,000
Italy	26,000	107,000	33,000	89,000	255,000	700	940,000
Spain	14,000	116,000	11,000	4,000	145,000	416	400,000
Portugal	4,000	17,000	3,000	2,000	26,000	132	150,000
Belgium	6,000	31,000	6,000	5,000	48,000	200	148,000
Holland	2,000	21,000	5,000	1,000	29,000	220	55,000
Denmark . . .	2,000	12,000	2,000	1,000	17,000	120	60,000
Sweden and Norway .	6,000	43,000	6,000	2,000	57,000	300	230,000
Switzerland . . .	3,000	96,000	18,000	9,000	126,000	42	207,000
Greece	3,000	16,000	4,000	3,000	26,000	120	105,000
Roumania . . .	4,000	23,000	6,000	3,000	36,000	312	118,000
Servia	1,000	14,000	2,000	1,000	18,000	144	100,000
Bulgaria	2,000	23,000	2,000	2,000	29,000	96	100,000
Turkey	20,000	98,000	30,000	12,000	160,000	1,190	470,000
Europe . . .	411,000	2,197,000	393,000	351,000	3,352,000	10,630	9,366,000
United States . . .	8,000	15,000	2,000	1,000	26,000	100	...
South America . .	17,000	59,000	6,000	7,000	89,000	200	...
Japan	3,000	47,000	5,000	5,000	60,000	160	...
India	23,000	114,000	4,000	4,000	145,000	...	...
Persia	6,000	17,000	1,000	1,000	25,000	...	...
Total . .	468,000	2,449,000	411,000	369,000	3,697,000	11,110	...

In the war footing of European armies as given above only the first line of reserves is included. If all reserves were included the above numbers might be safely doubled.

According to Napoleon Bonaparte, the proportions of an army should be 70 per cent. infantry, 17 per cent. cavalry, and 13 per cent. between artillery, engineers, and train. The proportions of European armies in the above statement are 66 per cent. infantry, 12 per cent. cavalry, and 22 per cent. between artillery, engineers, and train.

The standing armies of twelve principal countries of Europe have been as follows:—

	Army			War Footing	Soldiers per 1000 Inhabitants in 1888	
	1810	1851	1888–89	1888–89	Peace	War
Great Britain	307,000	129,000	210,000	606,000	56	160
France	570,000	365,000	555,000	1,315,000	138	370
Germany	160,000	346,000	492,000	1,492,000	102	310
Russia	558,000	644,000	800,000	1,720,000	100	210
Austria	347,000	282,000	323,000	1,150,000	80	280
Italy	75,000	142,000	255,000	940,000	85	310
Spain	54,000	87,000	145,000	400,000	76	230
Portugal	10,000	28,000	26,000	150,000	60	350
Belgium	...	40,000	48,000	148,000	85	240
Holland	22,000	50,000	29,000	55,000	70	140
Denmark	75,000	25,000	17,000	60,000	90	300
Sweden	43,000	57,000	57,000	230,000	90	330
Europe	2,221,000	2,195,000	2,957,000	8,266,000	91	270

The minimum height in the principal armies is as follows:

	Ins.			Ins.
British	63.0	Belgian		61.9
French	60.7	Swedish		63.3
German	61.9	American		63.0
Austrian	61.2	Prussian Guard		67.0
Italian	61.5	Uhlans		65.9
Spanish	61.5	Infantry		61.9

For average height, see p. 62.

The proportion of men drafted to the ranks out of 1000 recruits or conscripts was:—

Nation	Rejected for		Good for Service	Date
	Under Height	Infirmity		
British	...	...	670	1844–52
French	61	327	612	1860–68
Prussian	95	380	525	1831–63
Bavarian	16	233	751	1822–53
Saxon	220	380	400	1826–54
Wurtemburger	120	410	470	1834–57
Austrian	113	343	544	1857–64
Russian	...	...	780	1860–61
Swede	101	180	719	1847–48
Dane	150	320	530	1852–56
Spaniard	101	75	824	1857–66
Belgian	121	107	772	1841–60
Hollander	160	71	769	1851–61
United States	...	...	720	1863–65

The following table shows the death-rate and ratio invalided:—

Army	Per 10,000 Soldiers Yearly		Date
	Died	Invalided	
British	95	340	1860–68
French	101	70	1862–69
Prussian	64	140	1860–63
Belgian	129	90	1868–69
Austrian	116	210	1869
Portuguese	127	170	1861–67
Russian	165	...	1858–68
United States	140	250	1859
Do. Blacks	180	...	1859

The dietary of the various armies is as follows:—

Army	Daily Rations, Oz.					Weekly Rations, Oz.		Extras Weekly
	Bread	Meat	Rice	Dried Vegetables	Potatoes	Salt	Coffee	
British	16	12	2	8	16	2	4	9 oz. sugar
French	22	9	4	11	11	6	3	...
Russian	16	16	...	35	...	6	...	2 galls. beer
Austrian	32	8	1	11	9	...	...	8 oz. grease
Italian	27	11	4	...	...	4	4	½ gall. wine
Spanish	18	8	6	...	16	...	3	3 lbs. fish
Belgian	27	9	...	...	35	8	3	5 oz. butter
Turkish	32	9	3	1	...	...	...	3 oz. grease
American	22	20	2	...	16	5	10	22 oz. beans
German	28	8	3	...	...	...	4	7 oz. sugar

The years of service under the colours and in the reserve are:—

	Colours	First Reserve	Second Reserve	Age at Enrolment
France	5	4	11	20
Germany	3	4	15	20
Austria	3	7	12	20
Italy	3	5	12	21

The equipment of infantry and cavalry weighs as follows:—

	Infantry	Cavalry
British	60 lbs.	125 lbs.
German	60 „	122 „
French	72 „	155 „
Russian	68 „	...

The rate of marching per hour is as follows:—

	English Miles		
	Ordinary	Quick	Double Quick
British	3.0	3.3	5.0
German	...	3.0	5.0
French	2.7	3.3	5.0

BRITISH ARMY

The strength of the regular standing army at various periods has been thus :—

Year	Men	Per 10,000 Inhabitants	Year	Men	Per 10,000 Inhabitants	Year	Expenditure, £
1661	5,200	9	1810	306,700	171	1780	7,800,000
1688	28,000	51	1830	108,700	46	1810	26,700,000
1730	17,000	30	1850	138,800	52	1830	8,600,000
1764	40,000	53	1860	229,500	79	1860	18,000,000
1792	57,300	60	1889	212,000	58	1888	18,400,000

The forces of the United Kingdom, regular or irregular, were :—

	1850	1870	1888
Army	139,000	193,000	210,000
Reserves and militia .	20,000	122,000	174,000
Volunteers . . .	...	193,000	222,000
Total . .	159,000	508,000	606,000

If Yeomanry and Royal Irish Constabulary be added, the total for 1888 will reach 630,000 men. The several Arms in 1888 were :—

	Army	Reserves and Militia	Volunteers	Indian Army	Total
Infantry . .	140,000	122,000	174,000	114,000	550,000
Cavalry . .	17,000	18,000	1,000	23,000	59,000
Artillery . .	34,000	22,000	38,000	4,000	98,000
Engineers, &c.	19,000	12,000	9,000	4,000	44,000
Total. .	210,000	174,000	222,000	145,000	751,000

The total land force of the British Empire is as follows :—

British regular army . . .	212,000
Reserve and militia . . .	205,000
Volunteers	222,000
Yeomanry	14,000
Irish constabulary . . .	13,000
Anglo-Indian army . . .	145,000
Indian police	190,000
Colonial forces . . .	15,000
Total . . .	1,016,000

The regular army has 9,400 officers, and 16,100 petty officers.

The following table shows the garrison of the United Kingdom since 1800, exclusive of the auxiliary forces :—

Year	Horse	Foot	Artillery, &c.	Total
1800	14,000	49,000	8,000	71,000
1810	20,000	74,000	19,000	113,000
1820	10,000	47,000	4,000	61,000
1830	8,000	35,000	5,000	48,000
1840	7,000	39,000	4,000	50,000
1850	8,000	50,000	9,000	67,000
1860	11,000	62,000	17,000	90,000
1870	11,000	56,000	17,000	84,000
1880	13,000	72,000	22,000	107,000
1889	13,000	70,000	22,000	105,000

The equipment and distribution of the regular army were as follows :—

	1889		1888				
	Officers and Men	Horses	Infantry	Cavalry	Artillery	Engineers, &c.	Total
England	74,000	9,600	43,000	9,000	15,000	16,000	83,000
Scotland	4,000	340	3,000	1,000	...	1,000	5,000
Ireland	28,000	3,300	21,000	3,000	3,000	3,000	30,000
United Kingdom . .	106,000	13,240	67,000	13,000	18,000	20,000	118,000
India	73,000	11,100	53,000	6,000	13,000	...	72,000
Egypt	3,400	300	5,000	...	1,000	...	6,000
Colonies	29,400	710	15,000	...	4,000	6,000	25,000
Total . .	211,800	25,350	140,000	19,000	36,000	26,000	221,000

The Indian establishment * is as follows :—

	European Army	Indian Army	Total Force		European Army
Horse .	6,000	23,000	29,000	Bengal . .	45,000
Foot .	54,000	114,000	168,000	Bombay .	13,000
Artillery	13,000	8,000	21,000	Madras, &c.	15,000
Total	73,000	145,000	218,000		73,000

* The feudatory States of India have also armies of their own, viz. :—

		Men	Guns
Hindoo States	. .	275,000	3,372
Mahometan	.	75,000	865
Total	.	350,000	4,237

The Volunteer force, created in 1860, showed as follows :—

Year	Roll	Efficient
1860	160,300	106,400
1865	226,700	133,800
1870	245,000	170,700
1875	238,300	168,700
1880	243,500	196,900
1888	258,000	222,000

The composition of the regular army is as follows :—

Nationality (1883)		Age (1883)		Religion (1889)	
English . .	70	Under 18 .	2	Church of England	67
Irish . .	20	18–30 . .	74	Roman Catholics .	19
Scotch . .	8	30–40 . .	20	Presbyterians . .	8
Colonial .	2	Over 40 .	4	Dissenters . . .	6
Total .	100	Total .	100	Total . .	100

In 1881 there were 93 per cent. of the men able to read and write, against 68 per cent. in 1860.

The health of the army has been greatly improved since Dr. Farr's barrack reform begun in 1860, on a basis of 600 cubic feet of air per man in Europe, and 1000 in India, with an allowance of 1600 cubic feet for each horse. In many barracks of Great Britain, down to 1861, the average accommodation only allowed 300 to 400 cubic feet per man. The new barracks at Chelsea are considered a model, the cost being £245 per man, including cost of site.

The death-rate of the garrisons under the old and new systems (exclusive of deaths in war) showed thus :—

	Per 1000 Men Yearly	
	1830–40	1876–80
Great Britain . .	16	7
India . . .	68	10
Jamaica . . .	143	22
Ceylon . . .	57	22
Canada . . .	21	18
Sierra Leone . :	483	...

The following table shows, moreover, what an improvement has taken place in the health of the army, both at home and abroad, since 1861 :—

	Per 1000 Men			
	Hospital Admissions		Deaths	
	1861	1871–80	1861	1871–80
India . . .	1,768	1,454	37	19
China . . .	1,492	1,196	28	14
Ceylon . . .	1,440	971	20	15
Bermuda . .	461	632	14	9
West Indies . .	1,002	913	14	11
Mauritius . .	608	1,834	12	17
Malta . . .	772	857	11	10
Canada . . .	644	667	8	7
Gibraltar . .	927	675	9	7
United Kingdom .	1,025	817	9	8

Death-rate in the United Kingdom ranges from 5½ per 1000 in cavalry to 7½ in the engineers, the general average being under 7 per 1000. The saving of life consequent on the barrack reforms is equal to 4200 men yearly in India, and 2500 in the rest of the army.

In active service the death-rate among officers is heavier than among the rank and file.

The Duke of Wellington's army roll from 1811 to 1814 showed :—

	Officers		Men	
Killed . .	14.5 per cent.		10.2 per cent.	
Wounded . .	81.0	,,	49.0	,,
Died of disease .	13.0	,,	38.0	,,

FRENCH ARMY

The strength has been at various periods as follows :—

Date	Men	Horses	Expenditure, £
1783	127,000	30,000	...
1812	743,000	180,000	...
1836	280,000	54,000	8,700,000
1848	445,000	90,000	16,800,000
1869	426,000	90,000	18,400,000
1880	498,000	124,000	33,000,000
1888	525,000	122,000	22,200,000

The army list for 1890 shows as follows :—

	France	Algeria	Tunis, &c.	Total
Horse	67,000	8,000	2,000	77,000
Foot	291,000	29,000	7,000	327,000
Artillery	73,000	3,000	1,000	77,000
Gendarmes . . .	22,000	1,000	...	23,000
Engineers, &c. . .	40,000	9,000	2,000	51,000
Total . .	493,000	50,000	12,000	555,000
Horses	119,000	15,000	4,000	138,000

Deducting sick and absent, the effective force in January 1890 was 511,000 between officers and men, the officers numbering 26,600, reserve 860,000, militia 1,022,000, total 2,337,000. The artillery consists of 2060 field-guns and 99 fortress batteries. Napoleon's army in 1805 consisted of 380,000 infantry, 76,000 cavalry, and 35,000 artillery.

The army roll shows that from June 1791 to November 1813 the number enrolled was 4,556,000 men, but the Minister of War in 1814 was of opinion that only 2,022,000 had actually passed under the colours.

The following table shows the nominal and actual levies, the numbers rejected by the army doctors, and those drafted to the colours.

Years	Nominal Levy	Actual Levy	Rejected for			Drafted to Colours	Percentage Rejected
			Under Height	Other Causes	Total		
1813	1,140,000	...	...	...	...	...	...
1816–20	297,000	...	...	...	...	40,000	...
1821–30	283,000	...	...	...	...	60,000	...
1831–40	300,000	...	...	...	...	80,000	...
1841–50	305,000	143,000	12,000	51,000	63,000	80,000	37.7
1851–60	306,000	179,000	14,000	57,000	71,000	108,000	34.4
1861–70	316,000	164,000	10,000	54,000	64,000	100,000	35.1
1887	316,000	...	7,000	91,000	98,000	218,000	31.0

The minimum height at various periods was fixed thus :—

Year	Ins.	Year	Ins.	Year	Ins.
1691 . . .	66.1	1813 . . .	60.0	1832 . . .	61.5
1776 . . .	65.0	1818 . . .	61.8	1868 . . .	61.0
1792 . . .	64.0	1830 . . .	60.7	1872 . . .	60.7

For the average height of conscripts at various dates, see 65, Anthropometry.

The number of volunteers who joined the colours was as follows :—

1815 . . .	6,800	1860 . . .	12,900
1830 . . .	8,700	1865 . . .	10,100
1855 . . .	21,900	1869 . . .	6,100

The average age of officers in 1866 was 37 years 8 months, and of men 26 years 3 months.

The annual death-rate for ten years ending 1884 averaged 10 per thousand. In 1885 it was only 7.6, which is about the same as in the United Kingdom, the arms varying thus :—

Engineers . . 5.1 | Artillery . . 6.7 | Train . . . 8.5
Cavalry . . 6.6 | Infantry . . 7.5 | Zouaves . . 9.7

There were in 1885 under the colours 452,000 men, whose aggregate of days in hospital was 6,300,000 ; this was equal to nearly 4 per cent. (3.8) of the men being constantly in hospital. The number of courts-martial in 1886 was as follows :—

	Tried	Condemned
Officers	16	10
Men	5,549	4,750
Total . .	5,565	4,760

The numbers condemned in 1886 compared with 1882 thus :—

	1882	1886
Shot	57	69
Galleys	136	114
Imprisonment . . .	3,828	4,313
Reprimand . . .	289	264
Total . .	4,310	4,760

GERMAN ARMY

The strength at various periods has been as follows :—

Year	Strength	Year	Strength
1810 . . .	160,000	1865 . . .	441,000
1831 . . .	331,000	1871 . . .	937,000
1851 . . .	346,000	1890 . . .	492,000

The army of Prussia at various dates was :—

1740 . . .	76,000	1830 . . .	162,000
1744 . . .	95,000	1865 . . .	239,000
1801 . . .	220,000	1871 . . .	750,000
1808 . . .	42,000	1886 . . .	377,000

The army in 1890 stands thus :—

In 1801 it consisted of 40,000 horse and 180,000 foot.

Before the dismemberment of the German Confederation in 1865, the army also included an Austrian contingent, which is not included above. For example, the confederate army in 1865 comprised :—

	Men	Horses
Prussia	239,000	54,000
Austria	222,000	31,000
Bavaria	67,000	8,000
Small States	135,000	17,000
Total . . .	663,000	111,000

The forces in campaign against France at the outbreak of the war in August 1870, and their maximum in February 1871, are shown thus :—

	August 1870	February 1871
Prussians	564,000	719,000
Bavarians	98,000	105,000
Saxons	43,000	44,000
Wurtemburgers . .	27,000	29,000
Various	49,000	40,000
Total . . .	781,000	937,000

The recruits annually enrolled, and the proportion unable to read and write, were as follows :—

Period	Recruits	Illiterate, per Cent.	Recruits for 1887
1876-80	141,000	19	Prussia . . 104,000
1881-87	154,000	12	Bavaria . . 20,500
1876	140,000	24	Other States 44,500
1887	169,000	7	Total . 169,000

	1890			1886			
	Officers	Men	Total	Prussia	Bavaria	Other States	Total
Horse	2,360	65,000	67,360	51,000	7,000	7,000	65,000
Foot	11,200	329,000	340,200	267,000	40,000	38,000	345,000
Artillery . . .	2,720	59,000	61,720	43,000	6,000	6,000	55,000
Engineers, &c. .	3,220	19,500	22,720	16,000	3,000	3,000	22,000
Total .	19,500	472,500	492,000	377,000	56,000	54,000	487,000
Horses	...	...	...	66,000	9,000	9,000	84,000

The strength of the principal garrisons in 1883 was as follows :—

Berlin . 17,800 | Mayence . 7,700 | Konigsberg 6,400
Metz . 14,400 | Cologne . 7,700 | Potsdam . 6,600
Strasburg 9,000 | Coblentz . 6,400 | Magdeburg 6,100

The expenditure for the German army in 1889 amounted to £18,840,000, equal to £38 per man, of which £5,500,000 was for pay, £4,300,000 for food, and £1,200,000 for clothing.

RUSSIAN ARMY

The strength at various periods was as follows :—

Year	Force	Year	Force	Year	Force
1712 .	108,000	1800 .	433,000	1855 .	888,000
1725 .	196,000	1812 .	540,000	1869 .	834,000
1756 .	163,000	1827 .	870,000	1874 .	794,000
1765 .	313,000	1846 .	730,000	1888 .	770,000

Official returns in 1801 showed that the army then consisted of 234,000 infantry, 180,000 cavalry and Cos-

sacks, and 19,000 artillery, in all 433,000 men, but the actual fighting strength was believed hardly to reach 250,000. During the war with Turkey in 1827 the nominal strength was 650,000 infantry, 170,000 cavalry, and 50,000 artillery, in all 870,000, but the real force was probably under 500,000.

According to an official statement in 1890 the army is summed up thus :—

	Peace		War	
	Men	Guns	Men	Guns
Infantry . . .	386,000	...	810,000	...
Cavalry . . .	57,000	...	156,000	...
Artillery . . .	62,000	1,540	75,000	4,030
Engineers, &c. .	50,000	...	71,000	...
Cossacks . . .	52,000	...	138,000	240
Reserves . . .	193,000	...	470,000	1,020
Total . .	800,000	1,540	1,720,000	5,290

The peace footing has 170,000 horses. The above does not include the Siberian force of 131,000 men and 200 guns.

The *Statesman's Year-Book* gives the following estimated war footing for the whole Empire :—

	Combatants	Non-Combatants	Horses	Guns
European Russia	1,770,000	85,000	340,000	3,380
Caucasia . . .	250,000	15,000	68,000	300
Siberia, &c. . .	130,000	8,000	36,000	196
Total . .	2,150,000	108,000	444,000	3,876

AUSTRO-HUNGARIAN ARMY

The strength at various dates showed thus :—

Year	Army	Year	Army	Year	Army
1740 . .	30,000	1809 . .	280,000	1866 . .	647,000
1805 . .	220,000	1830 . .	286,000	1889 . .	323,000

The establishment for 1889 stood thus :—

	Peace Footing	War Footing		
		Army	Reserves	Total
Horse	48,000	64,000	29,000	93,000
Foot	193,000	563,000	737,000	1,300,000
Artillery . . .	30,000	91,000	...	91,000
Engineers, &c. .	52,000	110,000	37,000	147,000
Total . .	323,000	828,000	803,000	1,631,000

The reserves consist of 350,000 Landwehr and 453,000 Landsturm. The artillery has 850 guns in time of peace, and 2008 on a war footing. There are 49,000 horses in peace, and 217,000 on war footing. Of the standing army in time of peace, Austria contributes 60, Hungary 40 per cent.

The strength of the several arms compares thus :—

	1830	1889	Ratio	
			1830	1889
Infantry . . .	196,000	193,000	68.5	59.8
Cavalry .	45,000	48,000	15.8	14.8
Artillery . .	31,000	30,000	10.8	9.3
Engineers .	14,000	52,000	4.9	16.1
Total	286,000	323,000	100.0	100.0

The proportion of conscripts rejected by the army doctors was much greater in ten years ending 1872 than before, viz. :—

	Rejected per 1000	
	1857–64	1863–72
Under height . . .	113	197
Physical infirmity .	343	553
Total .	456	750

In the latter period the proportion of Austrians rejected as too short was relatively one-fourth greater than that of Hungarians.

ITALIAN ARMY

The strength at various dates of the military forces of the States now forming the kingdom of Italy was :—

Year	Army	Year	Army
1810 . .	75,000	1869 . .	190,000
1830 . .	85,000	1878 . .	215,000
1851 . .	142,000	1889 . .	255,000

The establishment in 1889 was composed as follows :—

	Army		Reserves		War Footing
	Under Arms	On Furlough	Mobile	Territorial	Total
Horse . .	26,000	10,000	...	31,000	67,000
Foot . . .	107,000	203,000	210,000	567,000	1,087,000
Artillery .	33,000	60,000	25,000	49,000	167,000
Rifles . .	13,000	29,000	22,000	35,000	100,000
Carbineers .	24,000	4,000	...	9,000	37,000
Engineers, &c. }	52,000	81,000	42,000	63,000	238,000
Total .	255,000	387,000	299,000	755,000	1,696,000

There is still another line of reserves, 1,069,000 men, which would bring up the total to 2,765,000.

The ratio of conscripts rejected by the army doctors shows thus :—

From Rome .	18 per cent.		From Piedmont 31 per cent.		
,, Naples .	23 ,,		,, Venetia 34 ,,		
,, Sicily .	30 ,,		,, Lombardy 44 ,,		

According to the *Annales de Demog.*, the above results were obtained from one million conscripts.

SPANISH ARMY

The strength at various dates was as follows :—

Year		Army	Year			Army
1810	. . .	54,000	1851	.	. .	87,000
1831	. . .	46,000	1889	.	. .	145,000

The actual establishment is as follows :—

	Peace	War
Horse . . .	14,000	21,000
Foot . . .	116,000	343,000
Artillery . .	11,000	30,000
Engineers . .	4,000	7,000
Total . .	145,000	401,000

There are 104,000 men in Spain, 30,000 in Cuba and Porto Rico, and 11,000 in the Philippine Islands.

PORTUGUESE ARMY

The strength at various dates was as follows :—

Year		Army	Year			Army
1810	. . .	10,000	1851	.	. .	28,000
1830	. . .	26,000	1888	.	. .	26,000

Including reserves, the peace and war footings show thus :—

					Peace	War
Men .	.	.	.	.	33,000	150,000
Horses	.	.	.	.	4,000	13,000
Guns .	.	.	.	.	132	264

The garrison of Portugal is 17,000 ; of the colonies, 9000 men.

SWEDISH ARMY

Before the annexation of Norway, the Swedish army in 1805 counted 11,000 horse, 24,000 foot, and 4000 artillery, in all 39,000 men. The combined strength of Sweden and Norway in 1830, on peace footing, was 42,000, and in 1851 it amounted to 57,000.

The present establishment is as follows :—

	Peace			War		
	Sweden	Norway	Total	Sweden	Norway	Total
Horse . .	5,000	1,300	6,300	9,000	3,000	12,000
Foot . .	27,500	15,000	42,500	157,500	34,000	191,500
Artillery .	4,500	1,800	6,300	13,000	2,000	15,000
Engineers .	1,300	700	2,000	10,500	1,000	11,500
Total .	38,300	18,800	57,100	190,000	40,000	230,000

DANISH ARMY

In 1805 it comprised the forces of Denmark and Norway, viz. :—

	Denmark	Norway	Total
Infantry . . .	30,000	34,000	64,000
Cavalry . . .	7,100	3,200	10,300
Artillery . . .	3,100	...	3,100
Total . .	40,200	37,200	77,400

In 1830 the force was only 39,000, Norway having been united to Sweden, and even this must have included irregulars; the regular army in 1850 amounted only to 25,000 men. In 1889, the forces were approximately as follows :—

	Peace	Reserves	War Footing
Horse . . .	2,000	2,000	4,000
Foot . . .	12,000	33,600	45,600
Artillery, &c. .	2,600	6,400	9,000
Total . .	16,600	42,000	58,600

The artillery has 120 field-guns in time of peace.

DUTCH ARMY

The establishment in 1888 was approximately as follows :—

	Peace	Reserves	War Footing
Horse . . .	2,000	1,000	3,000
Foot . . .	21,000	16,000	37,000
Artillery . .	5,000	9,000	14,000
Engineers, &c. .	1,000	...	1,000
Total . .	29,000	26,000	55,000

There is also a militia, numbering 100,000 men; also a colonial army in Java, comprising 34,000 men, of whom 15,000 are Dutch and 19,000 natives.

BELGIAN ARMY

The establishment is as follows :—

	Peace			Peace	War
Horse . . .	6,000	Men . . .		47,500	148,000
Foot	31,000	Horses . .		9,000	14,000
Artillery, &c. .	10,500	Guns . . .		200	240
Total .	47,500			...	...

In time of war the Civic Guard (42,000) could be added, making a total of 190,000 men.
The death-rate has been as follows per 1000 men yearly :—

Year	Rate	Year	Rate	Year	Rate
1835	. . . 80	1860	. . . 20	1880	. . . 20
1850	. . . 40	1870	. . . 40	1888	. . . 13

The military hospital returns were :—

Year	Entries	Deaths	Deaths per 1000 Admitted	Days per Bed
1870	21,380	310	15.0	21
1880	16,290	190	12.4	21
1886	17,660	184	10.5	22

The levy averages 20,100 men, of whom 13,300 are passed to the colours; those rejected average 34 per cent. of the number drawn, 3½ per cent. being rejected as short of the required height.

SWISS ARMY

In 1889 the force was as follows :—

	Line	Landwehr	Landsturm	War Footing
Horse . . .	3,000	3,000	...	6,000
Foot	96,000	65,000	260,000	421,000
Artillery . . .	18,000	10,000	3,000	31,000
Engineers, &c.	9,000	3,000	...	12,000
Total .	126,000	81,000	263,000	470,000

The artillery has 42 guns in peace, and 300 on a war footing.

GREEK ARMY

The strength in 1889 was as follows :—

Horse . . .	3,000	Men . . .	26,000
Foot . . .	16,000	Horses . .	3,700
Artillery, &c. .	7,000	Guns . . .	120
Total .	26,000		

By calling out the militia, the war footing could be raised to 105,000 men.

ROUMANIAN ARMY

In 1889 the establishment was approximately as follows :—

	Army	Militia	War Footing
Horse . . .	4,000	4,000	8,000
Foot . . .	23,000	75,000	98,000
Artillery . .	6,000	3,000	9,000
Engineers, &c.	3,000	...	3,000
Total .	36,000	82,000	118,000

SERVIAN ARMY

The strength in 1889 was as follows, approximately :—

Horse . . .	1,000	Men . . .	18,000
Foot . . .	14,000	Horses . .	2,000
Artillery, &c. .	3,000	Guns . . .	144
Total .	18,000		

By calling out the reserves a war footing of 100,000 could be attained.

BULGARIAN ARMY

In 1888 the strength was approximately thus :—

Horse . . .	2,000	Men . . .	29,000
Foot . . .	23,000	Horses . .	2,000
Artillery, &c. .	4,000	Guns . . .	96
Total .	29,000		

The war footing is estimated at 100,000.

TURKISH ARMY

The strength at various dates was as follows :—

Year	Army	Year	Army
1810	. . . 297,000	1869	. . . 220,000
1855	. . . 165,000	1889	. . . 160,000

The present establishment is as follows :—

Horse . . .	20,000	Men . . .	160,000
Foot . . .	98,000	Horses . .	25,000
Artillery, &c. .	42,000	Guns . . .	1,190
Total .	160,000		

The reserves and Bashi-Bazouks are variously estimated. On paper, Turkey has a war footing of 800,000 men, but the total is generally supposed not to exceed 470,000.

UNITED STATES

The number of soldiers at various periods was :—

1775–83, War of Independence, enrolled 231,800 men.
1812, war with England, 68,000 men, of whom 32,400 regulars, the rest volunteers and militia.
1861–63, Federal Government enrolled 2,688,000 men ; Confederate, 300,000.

In 1889 the army counted 2200 officers and 26,000 men, viz. :—Horse, 8000 ; foot, 15,000 ; artillery, &c., 3000. Two regiments of horse and two of foot are composed of negro soldiers, with white officers.

ARMIES OF SOUTH AMERICA

The following table shows approximately the disciplined forces of Spanish America :—

	Horse	Foot	Artillery, &c.	Total
Mexico . . .	5,500	19,500	2,500	27,500
Central America	1,200	5,000	800	7,000
Columbia . . .	1,000	4,000	1,000	6,000
Venezuela . .	1,000	2,500	500	4,000
Ecuador . . .	500	2,000	500	3,000
Peru	600	4,800	500	5,900
Chile	1,000	4,000	500	5,500
Bolivia	500	2,000	500	3,000
Paraguay . . .	100	400	100	600
Uruguay . . .	1,000	2,000	500	3,500
Argentina . . .	2,500	3,500	1,000	7,000
Brazil	2,500	9,500	4,000	16,000
Total . .	17,400	59,200	12,400	89,000

In time of war the numbers are doubled, or even quadrupled, by adding raw levies of peasants.

JAPANESE ARMY

The actual strength, according to the *Statesman's Year-Book*, is as follows :—

Horse . . .	3,000	Men . . .	60,500
Foot . . .	47,000	Horses . .	7,200
Artillery, &c. .	10,500	Guns . .	160
Total .	60,500		...

There are also two lines of reserves, together 247,000 men, making up a total war footing of 307,500 men.

PERSIAN ARMY

It may be stated approximately as follows :—

	Peace	Reserves	War Footing
Horse	6,000	19,200	25,200
Foot	17,000	58,300	75,300
Artillery, &c.	2,000	3,000	5,000
Total . . .	25,000	80,500	105,500

The real strength of the Empire on war footing is believed not to exceed 50,000 men.

ARMIES OF ANTIQUITY

Date	General	Number	Observation
B.C. 480	Xerxes	1,800,000	Invading Greece
B.C. 332	Darius	750,000	War with Alexander
A.D. 720	Abderahman	300,000	Battle of Tours
A.D. 1095	{ Godfrey de Bouillon }	300,000	First Crusade

ARMY TRANSPORT

Date						Army of	Number	From	To	Miles	Days
193	.	.	.	.	.	Sept. Severus	35,000	Pannonia	Rome	800	40
1235	.	.	.	.	.	Gelaleddin	...	Tiflis	Kerman	1,000	17
1805	.	.	.	.	.	Napoleon	150,000	Boulogne	Germany	450	25
1863	.	.	.	.	.	Federals	25,000	Kentucky	Vicksburg	1,000	4
1865	.	.	.	.	.	Federals	16,000	Eastport	New Orleans	1,330	13
1866	.	.	.	.	.	Austrians	123,000	Venice	Danube	500	10
1877	.	.	.	.	.	Americans	400	Atalanta	Idaho	4,302	15

ASTRONOMY

According to Dr. Gould, there are 6100 stars in the Northern, and 7200 in the Southern Hemisphere distinctly visible to the naked eye. Mr. Proctor estimated the number of stars as follows :—

Down to 10th magnitude	.	.	.	1,000,000
,, 11th ,,	.	.	.	3,000,000
,, 12th ,,	.	.	.	9,000,000
,, 13th ,,	.	.	.	27,000,000

According to the Paris Observatory, the number down to 14th magnitude is about 50 millions. Dr. Gould fixed the position of 85,000 stars in the Southern Hemisphere in his *Uranometria Argentina*.

It seems that the first catalogue of the stars was that by Tycho Brahe, which included 777 fixed stars, and was published about 1590. A second, embracing 2884 stars, was made in 1725 by the Astronomer Royal at Greenwich, Flamsteed. His successor, Bradley, noted the position of 60,000, and the two Herschels, father and son, made catalogues respectively of the northern and southern hemispheres. The second Herschel also made a catalogue of 4000 double stars.

The following table shows the number of observatories and the size of the principal telescopes in the world :—

Observatories				Telescopes			
United Kingdom .	.	14					Inches Aperture
France . . .	.	6					
Germany . . .	.	29	Lord Rosse	.	.	72
Russia . . .	.	12	Lassell	.	.	48
Italy . . .	.	9	Herschell .	.	.	48
Austria . . .	.	8	Polkova	.	.	30
Switzerland .	.	4	San José, California	.	28
Other countries	.	12	Vienna	.	.	27
		—	Washington	.	.	26
Europe . . .	.	94	Newcastle	.	.	25
United States	.	19	Pultowa	.	.	16
Canada . . .	.	1	Cambridge, U.S.	.	15
Spanish America	.	7	Paris	.	.	13
Asia . . .	.	2	Greenwich	.	.	12
Africa . . .	.	2	Cincinnati	.	.	12
Australia .	.	3	Munich	.	.	11
		—	Rome	.	.	10
The World . .	.	128	Berlin	.	.	10

Leyden Observatory was founded 1632, Copenhagen 1637, Greenwich 1675, Paris 1677.

PLANETS

	Miles Diameter	Millions of Miles			Ratios of Size, Weight, &c.			
		Mean Distance from Sun	Least Distance from Earth	Greatest Distance from Earth	Size	Weight	Density	Days in Year
Earth	7,901	91	...	...	100	100	100	365
Mercury	2,962	35	47	136	5	7	124	88
Venus	7,510	66	23	160	80	79	90	225
Mars	4,920	139	62	245	14	12	96	687
Jupiter	85,390	476	409	592	138,700	30,000	20	4,333
Saturn	71,904	872	831	1,014	74,600	9,000	12	10,759
Uranus	33,024	1,753	1,746	1,929	7,200	1,300	18	30,687
Neptune	36,620	2,746	2,629	2,863	9,400	1,700	17	60,127

COMETS

Name	Years of Revolution	Millions of Miles from Sun		Next Return
		Greatest Distance	Least Distance	
Halley . .	77	3,200	56	1910
Mechain .	14	...	...	1899
Faye . . .	8	603	192	1896
D'Arrest .	7	...	...	1890
Biela . . .	7	585	82	1893
Brorsen . .	6	537	64	1890
Winnecke .	6	...	...	1891
De Vico . .	6	475	110	1895
Encke . .	3	387	32	1890

STARS ACCORDING TO MAGNITUDE

Magnitude	No.	Years for Light to Reach the Earth
1st . .	18	... 3
2nd . .	55	... 6
3rd . .	170	... 9
4th . .	500	... 12
6th . .	6,000	... 36
12th . .	10,000,000	... ...

All down to the 36th magnitude inclusive, that is, over 8000 in number, are clearly visible to the naked eye. A 9-foot telescope reveals those of the 12th magnitude, an 18-foot one those of the 13th, whose light takes 2700 years reach to us. Down to the 13th inclusive comprises 27,000,000.

ATHLETICS

Distance	Bicycle					Tricycle				
	Rider	Hours	Minutes	Seconds	Date	Rider	Hours	Minutes	Seconds	Date
1 mile	W. C. Jones .	0	2	20	1890	G. Gatehouse .	0	2	42	1887
5 ,,	S. G. Whittaker	0	13	46	1888	G. Gatehouse .	0	14	28	,,
10 ,,	H. G. Crocker .	0	27	8	,,	J. B. King . .	0	29	10	1888
20 ,,	S. G. Whittaker	0	56	32	,,	G. Gatehouse .	0	59	10	1887
30 ,,	E. Oxborough .	1	28	29	,,	F. W. Allard .	1	34	25	,,
50 ,,	W. F. Knapp .	2	29	41	,,	F. W. Allard .	2	43	54	,,
100 ,,	F. R. Fry . .	5	50	5	1883	A. L. Bower .	6	9	26	,,

G. P. Mills rode from Land's End to John o' Groats, 861 miles, in 5 days 2 hours; another person, from Tunbridge to Liverpool, 234 miles, in 18½ hours. In 1879, G. Waller rode, at the Agricultural Hall, Islington, 1405 miles in 6 days of 18 hours; in 1880, at the same place, H. Higham, 230 miles in 17 hours, without dismounting. In June 1888, in a six-days' race at Islington, between horse and bicycle, the horse won by 2 miles. In 1882 there were 9800 bicycle riders in London, and 96,000 in England and Wales.

CRICKET

The highest individual score on record is 485, by A. E. Stoddart, in 1886, in a match of Hampstead v. Stoics. The largest gross score is 920, by the Orleans Club, 3rd August 1882.

The highest records of throwing the cricket-ball are:—

Date	Throw	Yards	Place
1873	W. H. Game	127	Oxford
1888	— Crane	128	Melbourne

Mr. Crane, the champion thrower, is an American.

JUMPS

Date	Jump	Athlete	Feet	Inches
1881	Long standing	E. A. Johnson	11	1
1883	Long running	P. Davin	23	2
1878	High standing	E. A. Johnson	5	3
1887	High running	W. Byrd Page	6	4
1886	Pole jump	Tom Ray	11	6

RUNNING AND WALKING

Date	Miles	Athlete	Hours	Minutes	Seconds	Place
1886	1	W. S. George	0	4	13	London
1863	2	W. Lang	0	9	11	Manchester
1863	5	G. White	0	24	40	...
1885	10	W. Cummings	0	51	7	London
1880	20	J. E. Warburton	1	56	38	...
1881	30	G. Mason	3	15	9	...
1881	40	G. Bailey	4	34	27	...
1887	50	G. Cartwright	5	55	5	...
1882	100	C. Rowell	13	26	30	New York

The greatest distance walked in one hour was 8 miles 172 yards by W. Griffin in 1881, and in four hours was 27¼ miles by W. Franks in 1882. The greatest distance run in one hour was 11 miles 970 yards by Louis Bennett in 1863.

The following pedestrian feats in six days are recorded:—

Date	Miles	Athlete	Place
1880	550	Brown	London
1888	621	Albert	,,
1888	623	Littlewood	New York
1882	660	Hazel	,,

Mr. Hazel was an Englishman, and won £4000. In 1874, at Bristol, Miss Richards gained £50 for her aged parents by walking 1000 miles in 1000 consecutive hours. Mr. Weston has walked 5000 miles in 100 days.

SKATING

Date	Miles	Athlete	Hours	Minutes	Seconds	Place
1889	1	A. Paschin	0	2	57	Vienna
1889	1	O'Donoghue	0	2	57	,,
1890	2	Norseng	0	6	25	Amsterdam
1884	3	A. Paulsen	0	10	34	New York
1890	5	Norseng	0	16	48	Amsterdam
1884	10	A. Paulsen	0	36	37	New York
1884	20	,,	1	14	7	,,
1882	30	S. Montgomery	2	31	12	,,
1882	40	,,	3	21	22	,,
1882	50	,,	4	13	36	,,

SWIMMING

Captain Webb swam from Dover to Calais, August 24, 1875, in 21 hours 45 minutes, but was beaten by William Beckwith in a swimming match for 50 miles in 60 hours. Lord Byron swam across the Dardanelles.

Swimmer	Distance	Miles	Time
Miss Beckwith .	London to Greenwich	...	....
Miss Parker . .	London to Blackwall	7	95 min.
Miss Dicks . .	Shoreham to Brighton	6	...
Miss Saigeman .	,, ,,	6	...
Fr. Cavil . . .	Putney to Blackwall	16	4 hrs.
,, . . .	Calais to Dover	23	13 hrs.

Miss Beckwith was only 14 years of age when she swam from London to Greenwich (1875).

Date	Distance	Swimmer	Hrs.	Min.	Sec.
1884	1 mile	J. Collier	0	28	20
1881	500 yards	J. Finney	0	7	7

BOAT RACES

The quickest runs from Putney to Mortlake were :—

Year	Winner	Minutes	Seconds
1869 . . .	Oxford	20	4
1873 . . .	Cambridge	19	35

In 45 years Oxford won 23, Cambridge 21, and one was a dead heat.

B.

BALLOON

The most remarkable ascents on record are :—

Date	Aeronaut	Place of Ascent	Height, Yards	Distance, Miles
1783	Montgolfier .	Lyons . . .	2,000	...
1804	Gay-Lussac .	Paris . . .	7,700	...
1836	Holland . .	London . .	...	500
1859	Wise . . .	New York .	...	1,150
1862	Glaisher . .	Wolverton .	12,000	...

During the siege of Paris, September 1870 to February 1871, there were 64 balloons sent up, containing 91 passengers, 354 pigeons, and 3 million letters (weighing 9 tons). Mr. Glaisher states that in 3500 balloon ascents only fifteen deaths have occurred, that is, about four per thousand.

Mr. Godard, who died in November 1890, made over 2000 ascents. Charles Green, who died in 1870, had made 600; and Mr. Coxwell, who is still living, over 700, having attained with Mr. Glaisher a height of seven miles.

The results of Professor Glaisher's observations during nine ascents in 1863-64 were as follows :—

Elevation, Feet	Decrease of Temperature, Fahr.		Humidity	
	Cloudy Sky	Clear	Cloudy Sky (74)	Clear (59)
1,000	4	6	76	61
2,000	8	11	76	70
5,000	18	21	74	69
10,000	31	34	48	46
15,000	42	44	59	44
20,000	49	52	29	33
23,000	52	56	40	16
30,000	...	62	...	...

BANKS

The banking power of the world has increased in a surprising degree in the last fifty years, viz. :—

	1840	1870	1888-90
	Millions £	Millions £	Millions £
United Kingdom	132	720	910
United States .	90	440	1,030
France	16	64	268
Germany . . .	12	49	231
Australia . . .	5	38	134
Canada	3	12	40
River Plate . .	2	9	37
Other countries .	48	270	547
Total . .	308	1,602	3,197

The issues of State banks in England, France, Austria, Germany, Russia, and United States, compared with specie reserve at the subjoined dates as follows :—

	Issue, Millions £			Specie Reserve, Millions £		
	1870	1880	1890	1870	1880	1890
Bank of England	24	27	25	21	28	21
Bank of France	58	92	120	50	79	103
Bank of Austria	30	33	42	11	17	22
German banks .	43	50	49	20	31	42
Bank of Russia .	100	140	123	24	28	33
U. States banks	96	73	27	} 28	68	229
,, Treasury	63	72	181			
Total . .	414	487	567	154	251	450

In twenty years the specie reserve was trebled, while the paper issue only rose 33 per cent. The ratio of specie

to paper money in general was 38 per cent. in 1870, and 79 per cent. in 1890.

It appears that the amount of capital employed in banking has almost doubled since 1870, and multiplied nearly tenfold since 1840. Banking power consists of capital, right of issue, and deposits in all banks, viz. :—

	Millions, £ Sterling			£ per Inhabitant
	Capital, &c.	Deposits	Total	
United Kingdom .	284	626	910	24.0
France	140	128	268	7.0
Germany	85	146	231	5.0
Russia	42	64	106	1.2
Austria	45	102	147	3.8
Italy	25	83	108	3.6
Spain	31	16	47	2.8
Portugal	6	4	10	2.2
Sweden	9	15	24	5.3
Norway	5	1	6	3.0
Denmark. . . .	2	21	23	11.6
Belgium	11	19	30	5.0
Holland	14	6	20	4.5
Switzerland . . .	5	12	17	6.0
Europe	704	1,243	1,947	5.5
United States . .	270	760	1,030	16.1
Australia	26	108	134	37.0
Canada	13	27	40	8.0
Cape Colony . .	2	7	9	6.0
Argentina . . .	12	17	29	8.0
Uruguay	3	5	8	12.0
Total . .	1,030	2,167	3,197	7.5

The issue and specie reserves of the banks of all nations in 1889 were as follows :—

	£ Sterling		Specie Ratio
	Issue	Specie in Safe	
			Per cent.
United Kingdom	39,000,000	28,000,000	70
France	121,400,000	101,000,000	84
Germany . . .	64,000,000	59,000,000	91
Russia	123,000,000	33,000,000	26
Austria	43,500,000	21,500,000	50
Italy	43,000,000	14,000,000	33
Spain	29,500,000	9,500,000	32
Sweden	6,300,000	2,700,000	44
Norway . . .	2,400,000	2,500,000	104
Denmark . . .	4,400,000	3,100,000	70
Belgium . . .	15,200,000	4,400,000	29
Holland . . .	17,200,000	10,600,000	60
Switzerland . .	6,200,000	3,900,000	63
Greece	3,000,000	1,000,000	33
Europe	518,100,000	294,200,006	47
United States .	26,700,000	34,300,000	128
Canada	6,300,000	1,400,000	22
Australia . . .	5,400,000	19,300,000	357
Cape Colony . .	700,000	1,600,000	230
Argentina . . .	44,000,000	4,500,000	10
Uruguay . . .	3,100,000	600,000	20
India	12,000,000	12,000,000	100
Total . .	616,300,000	367,900,000	60

The above does not include Government issues (for which see *Money*. The specie reserve in Argentina and Uruguay is full of doubt.

The statements of the twelve great banks of Europe in December 1889 was as follows :—

Bank of	Issue, £	Specie, £	Deposits, £	Discount, £	Capital, £
England	24,400,000	17,800,000	28,600,000	36,900,000	14,500,000
France	121,400,000	100,900,000	27,800,000	51,600,000	7,300,000
Germany	50,000,000	38,900,000	17,600,000	33,100,000	6,000,000
Austria	43,500,000	21,500,000	10,700,000	17,900,000	9,000,000
Russia	123,500,000	33,100,000	5,400,000	11,500,000	4,000,000
Italy	23,400,000	9,300,000	6,500,000	7,700,000	8,100,000
Spain	29,500,000	10,500,000	16,100,000	42,200,000	6,000,000
Netherlands	17,200,000	10,600,000	1,200,000	9,500,000	2,000,000
Belgium	14,800,000	4,000,000	2,200,000	12,100,000	3,000,000
Denmark	4,400,000	3,100,000	...	2,000,000	1,000,000
Sweden	2,500,000	1,100,000	800,000	3,400,000	2,200,000
Norway . . , ...	2,400,000	2,500,000	500,000	1,200,000	700,000
Total . . .	457,000,000	253,300,000	117,400,000	229,100,000	63,700,000

The figures for Spain and Netherlands are those of March 1890, the deposits for Austria of 1887, and the Scandinavian banks 1888.

The rates of interest * since 1851 have been as follows :—

	1851-60	1861-70	1871-80	1881-85	Average, 35 Years	1889
Great Britain .	4.17	4.23	3.28	3.30	3.81	3.55
France . . .	4.30	3.55	3.94	3.34	3.84	3.18
Germany . . .	4.05	4.56	4.30	4.20	4.28	3.70
Austria . . .	5.26	4.77	4.79	4.71	4.91	4.12
Italy	5.35	5.69	4.85	4.74	5.22	...
Holland . . .	3.60	3.98	3.40	3.56	3.64	2.50
Belgium . . .	3.62	3.59	3.60	3.62	3.62	3.62
Europe . . .	4.27	4.30	3.71	3.93	4.12	3.44

* In the Middle Ages 10 per cent. was the ordinary rate. Philip Augustus promulgated a law in France in 1222 limiting the maximum to 10 per cent.

The discounts of the principal banks (according to Spallart, down to 1880), were :—

Bank of—	1868	1880	1889-90
	£	£	£
England . . .	18,500,000	24,000,000	36,900,000
France . . .	19,700,000	41,000,000	51,500,000
Germany . . .	22,800,000	32,400,000	33,100,000
Austria . . .	8,200,000	13,900,000	17,900,000
Belgium . . .	5,800,000	10,100,000	12,100,000
Holland . . .	3,200,000	4,600,000	9,500,000
U. States banks .	131,100,000	217,700,000	378,000,000
Total . .	209,300,000	343,700,000	539,100,000

It has been already shown that the banking power doubled between 1870 and 1888. The above table like-

PLATE II.

BANKING.

Banking Capital, millions £.

1030	910	268	231	147	134	108	106	47	40
U. STATES	U. KINGDOM	FRANCE	GERMANY	AUSTRIA	AUSTRALIA	ITALY	RUSSIA	SPAIN	CANADA

Savings-Banks Deposits, Shillings per Inhabitant.

209	158	104	101	88	84
DENMARK	SWITZERLAND	NORWAY	PRUSSIA	U. STATES	AUSTRALIA

65	62	60	59	50	46	40	27	22	16	2	2
AUSTRIA	ENGLAND	SWEDEN	FRANCE	SCOTLAND	ITALY	BELGIUM	HOLLAND	IRELAND	CANADA	SPAIN	RUSSIA
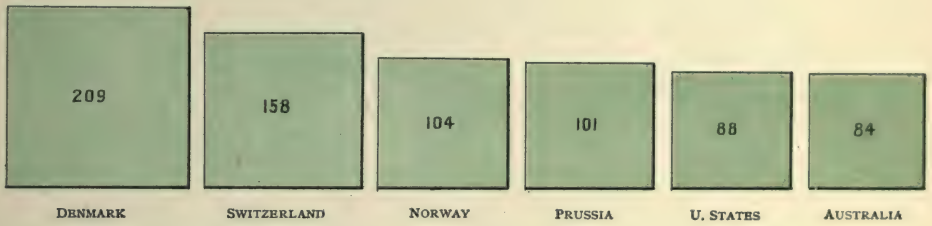
Depositors per 1000 Inhabitants.

360	240	180	170	165	135	120	105	102	77	67
SWITZERLAND	SCANDINAVIA	GERMANY	FRANCE	AUSTRALIA	U. KINGDOM	ITALY	HOLLAND	BELGIUM	AUSTRIA	U. STATES

wise shows that discounts more than doubled between 1868 and 1890.

The rates of exchange in London on the principal markets for forty-two years were :—

Period	London on			Calcutta on London	Price of Silver per Oz., Pence
	Paris	Hamburg	Amsterdam		
1841–50	25.76	13.12	12.1	23.1	59.8
1851–60	25.44	13.08	11.4	25.1	61.6
1861–70	25.46	13.09	11.6	24.3	60.5
1871–80	25.55	20.62	12.3	21.6	56.1
1881–82	25.53	20.67	12.5	19.9	51.7
1885–89	...	...	...	...	45.0

London rates on Paris from 1800 to 1880 were :—

Period	Highest	Lowest	Average	Date of Highest	Date of Lowest
1800–10 . .	25.2	19.6	22.4	1805	1809
1811–20 . .	26.1	17.6	22.0	1816	1811
1821–30 . .	25.9	25.2	25.6	1829	1824
1831–40 . .	25.9	25.2	25.5	1832	1831
1841–50 . .	26.7	24.9	25.8	1848	1850
1851–60 . .	25.5	24.9	25.4	1856	1851
1861–70 . .	25.5	25.0	25.4	1869	1869
1871–80 . .	26.9	25.2	25.6	1872	1874

The rates of interest in the United States, according to the New England Mutual Insurance Company, have steadily declined in the last twenty-one years, viz. :—

Years							Per Cent.
1869–73 .	.	.	.	.	.	.	6.1
1874–78 .	.	.	.	.	.	.	5.9
1879–83 .	.	.	.	.	.	.	5.0
1884–89 .	.	.	.	.	.	.	4.7

Berlin rates on the other great cities were as follows :—

	1875	1880	1887	1888
London	20.60	20.44	20.35	20.48
Paris	81.60	80.95	80.70	81.00
Amsterdam	174.90	169.10	168.65	...
Vienna	183.50	170.70	160.60	172.60
St. Petersburg . . .	281.25	213.80	202.80	193.80

The use of cheques compared with money at various dates and places shows thus :—

Date	Place	Per Cent.	
		Cheques	Notes and Coin
1839 . . .	London	93.2	6.8
1859 . . .	„	96.8	3.2
1881 . . .	„	98.9	1.1
1859 . . .	Provinces	47.3	52.7
1872 . . .	„	68.2	31.8
1881 . . .	England and Wales	97.0	3.0
1881 . . .	New York	98.7	1.3
1881 . . .	Western States . .	81.7	18.3
1881 . . .	United States . .	91.6	8.4
1881 . . .	United States Banks	94.4	5.6

The cheques paid in London and New York in one month aggregate 1270 millions sterling, which is much in excess of all the gold and silver coin in existence.

The business of the principal clearing-houses shows thus :—

LONDON			NEW YORK		
Year	Millions, £	Per Day, £	Year	Millions, £	Per Day, £
1817	880	2,900,000	1853	261	800,000
1839	980	3,200,000	1863	3,486	11,000,009
1867–70	3,540	12,000,000	1873	5,665	18,000,000
1871–80	5,210	17,000,000	1881	7,723	25,000,000
1881	6,383	20,500,000	1886	6,750	21,500,000
1889	7,620	25,400,000	...	...	...

The clearing-houses of thirty-six cities in the United States show the following aggregate returns :—

1886 .	.	.	.	10,240 millions sterling
1889 .	.	.	.	11,580 ,, ,,

The latest annual returns for Continental cities are, in millions sterling, thus: Berlin, 3780; Paris, 2200; Vienna, 498.

UNITED KINGDOM

The banking power has multiplied more than tenfold since 1825, viz. :—

Year				Million £	£ per Inhabitant
1825 . .	.	.	.	89	4.1
1835 .	.	.	.	101	4.0
1840 .	.	.	.	132	5.0
1850 .	.	.	.	260	9.3
1874 .	.	.	.	782	24.4
1890 .	.	.	.	910	24.0

The figures from 1825 to 1840 are taken from the *British Almanac*, those since 1850 from the *Banker's Magazine*, viz. :—

Banks	Million £		
	Capital and Deposit		
	1850	1874	1890
English	207	628	871
Scotch	36	106	111
Irish	17	48	56
Total	260	782	1,038

In the interval of twenty-four years from 1850 to 1874 the increase of banking power averaged 22 millions sterling per annum, and in that of sixteen years down to 1890 it averaged 16 millions per annum. In the whole period of forty years, about £18,500,000 per annum.

In the above table capital stands for the market value of the stock. English includes foreign and colonial banks domiciled in London, as appears from the following statement for 1890 :—

	Paid Capital	Reserve	Value of Stock	Deposits	Discounts	Assets
England	£ 53,800,000	£ 27,800,000	£ 165,500,000	£ 387,700,000	£ 289,800,000	£ 517,100,000
Scotland	9,100,000	5,600,000	22,900,000	88,300,000	58,000,000	113,400,000
Ireland	7,000,000	3,100,000	17,700,000	37,800,000	27,600,000	54,800,000
Colonial	43,000,000	19,100,000	77,600,000	240,700,000	303,100,000	387,000,000
Total . . .	112,900,000	55,600,000	283,700,000	754,500,000	678,500,000	1,072,300,000

The value of stock or share capital along with the deposits makes up a total banking power of 1038 millions sterling; but this includes 128 millions of deposits belonging to the Colonies, deducting which, we find the banking power of the United Kingdom is 910 millions sterling. There are in the United Kingdom 4460 banking offices, representing 175 joint-stock banks, whose stock is held among 90,000 shareholders.

The Bank of England was founded in 1694 by Rev. W. Patterson, a Scotchman, who died in poverty. The principal features of its business are indicated below.

The capital of the Bank has risen as follows:—

Year			£	Year			£
1694 .	.	.	1,200,000	1782 .	.	.	11,600,000
1708 .	.	.	4,400,000	1816 .	.	.	14,500,000
1746 .	.	.	10,800,000	1882 .	.	.	14,500,000

Year	Yearly Average			
	Issue	Deposits	Securities	Bullion
	£	£	£	£
1780	8,400,000	4,700,000	10,900,000	3,600,000
1790	10,000,000	6,200,000	10,300,000	8,600,000
1800	16,800,000	7,100,000	21,400,000	6,100,000
1810	21,000,000	12,500,000	35,400,000	3,500,000
1820	23,500,000	4,100,000	26,200,000	4,900,000
1830	20,100,000	10,800,000	24,200,000	9,200,000
1840	16,500,000	6,600,000	21,600,000	4,300,000
1850	20,400,000	18,400,000	26,000,000	16,000,000
1860	21,500,000	18,800,000	29,400,000	14,000,000
1870	24,500,000	24,200,000	29,500,000	22,300,000
1880	27,100,000	33,100,000	34,800,000	27,900,000
1882	25,700,000	28,800,000	37,100,000	20,400,000
1886	24,400,000	29,400,000	34,100,000	21,900,000
1890	24,600,000	32,300,000	36,600,000	20,800,000

The Bank first issued £10 notes in 1759, and £5 notes in 1793.*

The note issue of the United Kingdom was as follows:—

	1844	1854	1864	1874	1889
	£	£	£	£	£
England	28,400,000	27,900,000	26,700,000	31,500,000	27,200,000
Scotland	3,000,000	4,100,000	4,300,000	6,000,000	5,700,000
Ireland	5,900,000	6,400,000	5,600,000	6,800,000	5,800,000
Total . . .	37,300,000	38,400,000	36,600,000	44,300,000	38,700,000

The issue and specie reserves in 1849 and 1887 were as follows:—

	1849			1887		
	Issue, £	Specie, £	Ratio of Specie	Issue, £	Specie, £	Ratio of Specie
			Per Cent.			Per Cent.
Bank of England . .	18,300,000	14,300,000	79	24,400,000	21,200,000	87
All other banks . .	13,900,000	2,600,000	19	14,200,000	6,800,000	48
Total, United Kingdom	32,200,000	16,900,000	53	38,600,000	28,000,000	73

FRANCE.

Banking power seems to have increased seventeen-fold since 1839, viz.:—

Year	Millions, £ Sterling		£ per Inhabitant
1839	16	...	0.5
1869	64	...	1.7
1881	268	...	7.3

According to the *Journal des Economistes*, the increase of banking power between 1869 and 1881 was fourfold, viz.:—

in 1793.* Specie payments were suspended in 1797, consequent on the war with France, and one-pound notes issued. The notes steadily depreciated till 1813, when a £5 note was worth 73s., a loss of 27 per cent., that is to say, gold was at 37 per cent. premium. From 1814 a progressive improvement took place, until specie payments were resumed in 1821. The rate of interest was as follows:—

Period	Per Cent.		
	Highest	Lowest	Average
1694–1800	6.0	3.0	4.5
1801–1850	8.0	2.5	4.5
1851–1860	10.0	2.0	4.1
1861–1870	10.0	2.0	4.2
1871–1880	9.0	2.0	3.3
1881–1888	5.8	2.0	3.3

The year which had the highest average was 1864, namely, 7¼ per cent., although the rate never exceeded 9 in that year; the year with lowest average was 1852, namely, 2¼ per cent. The rate has only twice reached 10 per cent.—in the crises of 1857 and 1866. The maximum issue of notes was in March 1879, namely, 31 millions sterling, and the highest bullion reserve in September of same year, namely, £35,500,000. In the crisis of 1857 the bullion reserve fell to £6,400,000. Deposits reached a maximum in June 1879, namely, 37 millions.

* There had been, nevertheless, issued at earlier dates, as the records show, viz.:—

Year			£	Year			£
1700 .	.	.	860,000	1740 .	.	.	4,500,000
1710 .	.	.	600,000	1750 .	.	.	4,200,000
1720 .	.	.	2,500,000	1760 .	.	.	4,900,000
1730 .	.	.	4,200,000	1770 .	.	.	5,500,000

	1869, Millions, £	1881, Millions, £
Capital . . .	32	140
Deposits . . .	32	128
Total . .	64	268

The number of joint-stock banks was 20 in 1869, and 192 in 1881. There is no statement of capital and deposits in 1839, but as the turnover of the Bank of France for that year was one-fourth of the same in 1869, it is reasonable to infer that banking business had increased in the same degree. In 1881, on the authority above stated, there were in Paris 51 banks with a paid-up

capital of £48,200,000.* In 1889 were published the balance-sheets of 46 banks in France with an aggregate paid-up capital of £59,000,000. The market value of the stock being £96,000,000, that is, an average premium of 63 per cent.; the aggregate dividend was £4,600,000, or almost 8 per cent. on capital. The Bank of France was founded in 1803, capital £3,650,000 in shares of £40, with sole right of issue; no notes to be under £4. In 1857 the capital was doubled, the Bank lending the Government 40 millions sterling and receiving permission to issue £2 notes, the limit of issue being raised to 72 millions sterling. During the Franco-German war of 1870–71 the Government demands reached 260 millions sterling, the Bank being authorised to suspend specie payments and issue small notes down to five francs. The limit of issue was ultimately raised in 1872 to 128 millions sterling, at which it now stands. The Bank has 90 branches in the Departments. Official returns show as follows:—

Year	Issue, £	Gold, Reserve, £	Gold and Silver, £	Year's Discounts, £	Bank Rate
1800	640,000	300,000	300,000	3,800,000	6.0
1810	4,000,000	800,000	1,700,000	31,700,000	4.0
1820	6,200,000	...	7,800,000	12,200,000	4.7
1830	9,000,000	100,000	5,800,000	24,700,000	4.0
1840	9,000,000	800,000	9,900,000	44,200,000	4.0
1850	19,800,000	700,000	18,300,000	46,800,000	4.0
1860	29,400,000		20,600,000	198,600,000	3.6
1870	62,600,000	23,400,000	45,200,000	265,000,000	4.0
1880	92,400,000	27,200,000	81,000,000	348,000,000	2.8
1889	114,800,000	53,300,000	103,800,000	340,000,000	3.2

The share of discounts done at Paris was as follows:—

	1840	1850	1860	1870	1880	1887
Paris	84.3	29.2	32.7	43.2	47.0	47.2
Branches . .	15.7	70.8	67.3	56.8	53.0	52.8
Total . .	100.0	100.0	100.0	100.0	100.0	100.0

In 1887 the average amount per bill was £30 sterling; 1,600,000 were for sums under £4.

GERMANY

If we take the annual turn-over of the Bank of Prussia as a measure of the banking power of Germany, the latter may be set down thus:—

Year	Banking Power, Millions £ Sterling
1840	7
1850	11
1860	31
1870	125
1888	231

In 1876 Germany had 195 joint-stock banks with an aggregate capital of £85,000,000. Deposits in 1888 reached £146,000,000. This gives a total banking power of 231 millions, but the official return for 1887 gives the total of current discounts at only 164 millions sterling. The discount business is distributed thus:—

	£
Imperial Bank	25,700,000
Other banks of issue . . .	14,500,000
Joint-stock, &c. . . .	123,800,000
Total . .	164,000,000

The *Almanach de Gotha* (1888) compares the aggregate banking returns as follows:—

	1875	1880	1885	1888
	£	£	£	£
Issue	52,500,000	49,200,000	53,000,000	64,400,000
Specie reserve	33,800,000	37,000,000	38,200,000	59,400,000
Current discounts	179,000,000	157,000,000	165,000,000	164,000,000

In 1875 there were thirty-three banks of issue, but the number soon after fell to nineteen, the Reichsbank or Imperial German Bank having bought up several of them.

Besides the above banking issue the Government had £6,700,000 of Treasury notes in circulation.

The average rate of discount at Berlin for eight years ending 1889 was 3.9 per cent.

The Bank of Prussia (now the Imperial Bank) was founded in 1765, capital two millions sterling; this was doubled in 1856, the Government taking one-fourth of the stock, and giving it a charter to issue notes up to three times the amount of bullion at any time on hand. In 1875 it was reconstructed as the Imperial Bank, capital £6,000,000 in shares of £150 each; the Government drew out its capital, and the bank agreed to pay £100,000 per annum as royalty to the Imperial Treasury. The books of the old bank down to 1870 showed the turnover thus:—

	£		£
1820	11,400,000	1850	77,100,000
1830	35,500,000	1860	208,000,000
1840	45,200,000	1870	830,000,000

The turn-over of the Imperial Bank in 1877 was 2377 millions sterling.

The Bank of Munich, capital £1,700,000, has an issue of about one million sterling; those of Dresden and Stuttgart less. The aggregate issue of the minor banks in December 1887 amounted to £17,100,000; that of the Imperial Bank to £43,300,000.

RUSSIA

It appears that the banking capital is as follows:—

	£
Imperial Bank	4,000,000
29 great banks	15,000,000
347 small banks	23,000,000
Total . . .	42,000,000

The latest complete returns are those of 1878, which showed an aggregate of deposits reaching 64 millions sterling. This makes the total banking power 106 millions. The aggregate of discounts was 82 millions sterling. The Imperial Bank was founded in 1859, with sole right of issue. It materially serves the Government by printing inconvertible paper money, the amount of which in circulation is 123 millions sterling, and has twenty-six branches in various parts of the Empire. The balance-sheet for December 1889 was as follows:—

Liabilities, £			Assets, £
Issue . .	123,000,000	Bullion	33,100,000
Capital .	4,000,000	Discounts . . .	11,500,000
Deposits .	5,400,000	Government bonds	90,500,000
Sundries .	27,600,000	Sundries	24,900,000
Total .	160,000,000	Total . . .	160,000,000

For Land banks and Mortgage banks, see farther on.

* Deposits in 1881 were made up thus:—

	£
Bank of France . . .	34,100,000
22 large banks . . .	81,200,000
170 small banks . . .	12,700,000
Total . .	128,000,000

AUSTRIA

Official returns of all banks for 1887 were as follows :—

	Austria	Hungary	Total
	£	£	£
Paid capital . .	24,200,000	14,000,009	38,200,000
Reserve fund . .	4,000,000	3,200,000	7,200,000
Deposits . . .	65,000,000	36,600,000	101,600,000
Banking power .	93,200,000	53,800,000	147,000,000

The Austro-Hungarian Bank has the exclusive right of issue until December 1897. It was founded in 1861 ; capital £3,000,000 in shares of £60 each, with authority to issue uncovered notes up to 20 millions sterling, in notes from two shillings upwards. It was remodelled in 1880, the capital being raised to £9,000,000 sterling. The balance-sheet for 1887 showed :—

	Liabilities, £		Assets, £
Capital . . .	9,000,000	Cash . . .	22,400,000
Issue	39,100,000	Discounts .	16,000,000
Mortgages, &c.	12,900,000	Sundries .	22,600,000
Total . .	61,000,000	Total .	61,000,000

The issue and reserve have been :—

Year	Issue	Reserve	Ratio of Reserve	Premium on Gold
	£	£	Per Cent.	Per Cent.
1848 . . .	27,600,000	3,100,000	11.2	...
1870 . . .	29,700,000	11,200,000	37.0	...
1875 . . .	28,600,000	13,400,000	47.0	17
1880 . . .	32,900,000	17,300,000	52.5	21
1890 . . .	42,500,000	21,400,000	50.1	25

The discounts of this bank during eight years ending 1885 averaged £5,900,000 in Vienna, £2,600,000 in Buda-Pesth, and £5,900 000 in the provinces; total, £14,400,000. The specie reserve in July 1890 was composed of £5,000,000 gold and £16,400,000 silver. There are 52 Austrian and 144 Hungarian joint-stock banks, besides 836 People's Banks in Hungary, and 1178 in Austria.

ITALY

Banking power in 1881 amounted to 87 millions sterling, viz. :—

	Capital and Reserve Fund	Deposits	Total
Bank of Italy . .	6,900,000 ⎫	8,700,000	19,500,000
5 chartered banks .	3,900,000 ⎬		
113 joint-stock banks	8,200,000	17,500,000	25,700,000
362 other banks . .	4,200,000	37,300,000	41,500,000
Total . . .	23,200,000	63,500,000	86,700,000

In 1889 the capital and deposits of all banks (exclusive of Post-Office savings banks) were approximately as follows :—

	Capital, £	Deposits, £	Banking-Power, £
Chartered banks .	12,600,000	28,500,000	41,100,000
Joint-stock, &c. .	12,400,000	54,100,000	66,500,000
Total . .	25,000,000	82,600,000	107,600,000

The current discounts of the six great banks in 1889 amounted to 31 millions sterling, or three-fourths of their banking power.

The oldest chartered bank is that of Naples, founded in 1816, which now occupies the second rank, coming next after the Bank of Italy, founded in 1850. There are four other chartered banks with right of issue.

The returns of the chartered banks in 1876 were as follows :—

Founded	Name	Capital and Reserve, £	Number of Branches	Issue, £
1850	Bank of Italy .	6,900,000	68	16,300,000
1816	,, ,, Naples .	1,700,000	12	5,800,000
1857	,, ,, Tuscany	900,000	8	2,000,000
1850	,, ,, Rome .	700,000	1	1,600,000
1843	,, ,, Sicily .	400,000	8	1,500,000
1860	Tuscan Credit .	200,000	1	600,000
	Total . .	10,800,000	98	27,800,000

The Bank of Italy has a nominal capital of 10 millions sterling, of which 8 millions are paid-up, and a reserve fund of £1,600,000. It has right of issue up to 40 millions sterling, its actual issue in 1889 being £23,200,000, and its specie reserve £9,400,000, equal to 40 per cent. Taking the aggregate of discount business of the six chartered banks, the Bank of Italy stands for 40 per cent. of the total, according to returns published for 1875 and 1876, viz. :—

	Number of Bills Discounted		Amount for Twelve Months	
	1875	1876	1875	1876
			£	£
Bank of Italy .	546,000	555,000	51,600,000	46,100,000
Other 5 chartered banks	792,000	785,000	84,100,000	72,500,000
Total .	1,338,000	1,340,000	135,700,000	118,600,000

The bills in the Bank of Italy averaged 60, those in the other banks, 36 days. The amount of each bill was £90 in the five chartered banks, £81 in the Bank of Italy, and £44 in the joint-stock banks.

In December 1889 the Bank of Italy showed :—

Capital and re- ⎫ £ 9,600,000 ⎪ Issue . . . . 23,400,000 £
serve fund . . ⎬ ⎪ Specie 9,300,000
Deposits . . . 6,500,000

SPAIN

In June 1890 the Bank of Spain had notes in circulation to the amount of £30,000,000, against a specie reserve of £11,500,000. The deposits reached £16,200,000, and discounts £43,500,000. The Bank of Madrid has likewise issue up to £1,000,000.

PORTUGAL

Banking power is much greater than might be expected, a statement published in 1878 giving the aggregate of banks as follows :—

	£
Capital	6,000,000
Deposits	3,500,000
Banking power	9,500,000

Nevertheless usurers do a large business. In 1861 they held mortgages for six millions sterling on real estate, interest 15 to 20 per cent.

SWITZERLAND

Banking power 17 millions sterling, the returns of all Swiss banks in 1880 showing thus :—

	£
Capital .	4,500,000
Deposits	12,200,000
Banking power	16,700,000

Free banking is the rule, and there are thirty-four banks of issue, which show :—

Year	Issue	Specie Reserve
	£	£
1871 .	1,000,000	...
1877 .	2,900,000	1,400,000
1885 .	5,000,000	3,100,000
1890 .	6,200,000	3,900,000

The aggregate of discounts or bills in portfolio in 1877 was £6,900,000. The paid-up capital of the thirty-four banks is £4,900,000.

HOLLAND

The Netherlands Bank was founded in 1814, with sole right of issue up to 25 millions sterling, provided the specie reserve never fell below 40 per cent., the notes to have forced currency side by side with Government Treasury notes up to £1,200,000. The capital was at first £1,280,000 in £80 shares, but it has since been raised to two millions sterling. There are fifteen branches through Holland, and the notes are from £2 upwards. The statements for 1877 and 1890 showed thus :—

	1877	1890
	£	£
Issue .	15,800,000	17,200,000
Specie reserve	12,800,000	10,600,000

Discounts average £9,600,000 (or 86 millions yearly), the average term of bills being under forty days. There are 287 other banks and branches, holding deposits to the sum of £4,800,000. Total banking power about 20 millions sterling.

BELGIUM

The Bank of Belgium was founded in 1850, capital two millions sterling, which has since been raised to three millions in £40 shares, with sole right of issue. It has forty branches, and circulates notes from 16s. to £40. The balance-sheets showed as follows :—

Year	Issue, £	Bullion, £	Deposits, £	Discounts, £	Rate
1851	2,000,000	1,200,000	1,000,000	1,800,000	4.0
1860	4,800,000	2,500,000	3,300,000	6,200,000	3.2
1870	8,100,000	3,800,000	3,300,000	7,800,000	3.4
1880	13,600,000	4,000,000	2,900,000	11,400,000	3.4
1890	15,200,000	4,400,000	2,700,000	12,800,000	3.6

There are fifty-two other banks, the oldest, that of Flanders, founded at Ghent in 1836. The aggregate balance-sheets for 1888 showed :—

	£		£
Paid capital .	7,600,000	Discounts .	16,600,000
Reserve fund .	3,200,000	Loans & advances	8,200,000
Deposits, &c.	16,400,000	Sundries .	2,400,000
Liabilities .	27,200,000	Assets .	27,200,000

The total banking power is just 30 millions £.

SWEDEN

The Riks-bank or State Bank of Sweden was founded in 1656 by John Palmstruck, having obtained right of issue. It stopped payment four times, viz., in 1745, 1776, 1808, and 1813. The creditors received 70 per cent. in 1776, and 37 per cent. in 1813.

In 1830 the first of the Enskilda or private banks of issue was established, of which there are now 28, with 153 branches all over Sweden. They issue notes from £5 upwards, their specie reserve never falling below 35 per cent. The shareholders must be Swedes, each bank with a minimum capital of £55,000, and each shareholder individually liable up to the whole of that sum. The stock of the 28 banks in 1876 was held by 9100 persons.

The other fifteen joint-stock banks have no right of issue, and the shareholders are liable for no more than the amount of their shares.

Returns of all banks in 1889 showed as follows :—

	State Bank	Joint-Stock, &c.	Total
	£	£	£
Capital .	2,200,000	4,600,000	6,800,000
Reserve fund .	300,000	900,000	1,200,000
Issue .	2,500,000	3,800,000	6,300,000
Deposits .	800,000	14,100,000	14,900,000
Sundries .	1,700,000	10,400,000	12,100,000
Liabilities .	7,500,000	33,800,000	41,300,000
Bullion .	1,100,000	1,600,000	2,700,000
Treasury bills .	1,100,000	2,200,000	3,300,000
Discounts .	3,400,000	17,400,000	20,800,000
Cash, &c. .	1,900,000	12,600,000	14,500,000
Assets .	7,500,000	33,800,000	41,300,000

NORWAY

The balance-sheets for 1888 summed up thus :—

	Norges	Joint-Stock, &c.	Total
	£	£	£
Paid capital .	700,000	800,000	1,500,000
Reserve fund .	230,000	170,000	400,000
Deposits .	500,000	10,200,000	10,700,000
Banking power .	1,430,000	11,170,000	12,600,000

The discounts of the Norges or State bank average £1,200,000, that is, £9,600,000 in a year, the average term being forty-five days. The Norges was founded in 1816 with sole right of issue, capital £450,000, since raised to £700,000, with a reserve fund of £230,000. It can issue up to £3,000,000 : the actual issue in 1888 was only £2,400,000, and the bullion reserve was £2,500,000.

DENMARK

The capital and deposits of all banks in Denmark in 1886 were as follows :—

	£
Capital	2,200,000
Deposits	20,800,000
Total	23,000,000

In 1813 the currency was on a bad footing, gold being at 300 per cent. premium, and the notes only worth one-fourth of their written value.

In 1814 the Bank of Copenhagen was converted into a Riks-bank, with sole right of issue up to £2,250,000, provided the specie reserve never fell below 50 per cent.; it fell to 40 per cent. in 1865, but the notes remained at par. The charter was enlarged in 1860. The balance-sheet for 1888 showed thus : issue, £4,400,000 ; bullion, £3,100,000 ; discounts about £2,000,000. The first joint-stock bank was established at Copenhagen in 1857, with a paid-up capital of £700,000 ; in 1876 its discounts averaged £1,000,00c.

F

SERVIA

There are 37 banks, the principal being the National, with sole right of issue, and a paid-up capital of £800,000 sterling; the issue in 1889 was £1,200,000, specie reserve, £180,000. The others are 16 ordinary and 22 savings-banks.

The balance-sheets for 1881 and 1890 compare as follows :—

	Deposits, £		Discounts, £	
	1881	1890	1881	1890
New South Wales	18,800,000	34,600,000	17,200,000	39,800,000
Victoria	20,400,000	39,300,000	18,200,000	48,900,000
Queensland	3,400,000	9,900,000	4,000,000	17,100,000
South Australia	4,500,000	7,300,000	5,500,000	9,000,000
New Zealand	9,300,000	12,200,000	11,500,000	14,500,000
Tasmania	2,300,000	4,100,000	1,600,000	3,500,000
Western Australia	300,000	900,000	400,000	1,400,000
Total	59,000,000	108,300,000	58,400,000	134,200,000

	1890		
	Issue	Bullion	Deposits per Inhabitant
	£	£	£ s. d.
New South Wales	1,520,000	5,200,000	38 0 0
Victoria . . .	1,670,000	6,900,000	43 0 0
Queensland . .	670,000	2,200,000	25 0 0
South Australia .	450,000	1,700,000	22 0 0
New Zealand . .	880,000	2,400,000	18 10 0
Tasmania . . .	160,000	600,000	27 10 0
West Australia .	50,000	300,000	22 10 0
Total . .	5,400,000	19,300,000	29 0 0

CANADA

In 1888 there were 41 banks, an increase of 14 since 1868; the balance-sheets summed up as follows :—

	1868	1878	1888
	£	£	£
Paid capital . .	6,300,000	13,100,000	12,500,000
Deposits . . .	6,900,000	15,000,000	26,800,000
Banking power .	13,200,000	28,100,000	39,300,000
Issue	1,800,000	4,100,000	6,300,000
Discounts . . .	...	...	31,200,000

AUSTRALIA

The increase of banking power is shown by the following statement of discounts and deposits :—

Year	Discounts, £	Deposits, £
1872 . . .	31,500,000	32,000,000
1881 . . .	58,400,000	59,000,000
1890 . . .	134,200,000	108,300,000

The percentages of banking business in the principal provinces were in 1881 as follows :—

Quebec	55.4
Ontario	35.1
Nova Scotia, &c.	9.5
Total	100.0

Bullion reserve in 1888 was only £1,400,000, or 22 per cent. of issue. Liabilities of all the banks, £34,400,000; assets, £50,800,000, being 48 per cent. over liabilities.

SOUTH AFRICA

Banking power is about nine millions sterling, capital two millions, deposits £7,000,000. The returns of 1887 for the two colonies were :—

	Cape	Natal	Total
	£	£	£
Issue	460,000	150,000	610,000
Deposits . . .	5,950,000	1,200,000	7,150,000
Specie reserve .	1,300,000	300,000	1,600,000
Discounts . . .	6,600,000	1,200,000	7,800,000

In 1888 the issue of Cape Colony reached £660,000, and the eleven banks had an aggregate of £2,350,000 in paid-up capital and reserve fund. Assets, £10,600,000.

UNITED STATES

In 1783 the total banking capital was only £600,000; it appears to have multiplied twelve-fold in the ensuing eighteen years. We have regular statistics from 1801, as follows :—

Year	Number of Banks	Capital, £	Deposits, £	Issue, £	Specie Reserve, £	Ratio of Reserve
						Per Cent.
1801 . . .	33	7,000,000	...	...	...	...
1811 . . .	89	11,000,000	...	5,800,000	3,100,000	53
1815 . . .	208	17,100,000	...	9,600,000	3,500,000	36
1820 . . .	308	28,400,000	7,500,000	9,400,000	4,200,000	45
1830 . . .	330	30,200,000	11,600,000	12,700,000	4,600,000	36
1836 . . .	689	48,000,000	10,100,000	27,600,000	8,200,000	30
1840 . . .	901	74,400,000	15,800,000	24,400,000	6,900,000	28
1845 . . .	707	42,800,000	18,400,000	18,700,000	9,200,000	49
1850 . . .	872	47,200,000	27,100,000	32,200,000	10,200,000	31
1860 . . .	1,562	87,600,000	52,800,000	43,000,000	17,500,000	41
1870 . . .	...	130,000,000	420,000,000	62,800,000	...	...
1876 . . .	6,611	149,600,000	432,000,000	69,400,000	...	...
1882 . . .	7,448	149,200,000	604,200,000	65,600,000	21,400,000	33
1887 . . .	6,666	167,600,000	684,100,000	34,800,000	34,300,000	99
1889 . . .	6,721	180,100,000	759,400,000	26,700,000	34,300,000	128

In the above table it is well to remember that the figures for 1870 are depreciated paper-money at 13 per cent. discount, and 10 per cent. in 1876. Discounts in 1879 comprised 3,200,000 bills for 700 millions sterling, say £220 each.

The first bank was that of Massachusetts, founded in 1740, the second that of North America in 1781, the third that of New York in 1784. The United States Bank was established at Philadelphia in 1790 with a capital of $10,000,000, having several branches, and col-lapsed in the "Wild Cat" crisis of 1837. There were 901 banks in the year 1840, but the land speculation that ensued smashed more than 200, the number falling to 691 in 1843. From the latter year steady progress was made till 1861, when the war for the Union brought a suspension of specie payments. Nevertheless rapid advance was made till 1876, when a new tax on banks caused a contraction of about 10 per cent. in the capital employed in banking, without, however, causing any decline in the amount of deposits or discounts.

From information contained in the *Statesman's Year-Book* and the official Abstract for 1890, the banking of the Union may be summed up thus :—

Banks	No.	Capital	Reserve Fund	Deposits	Discounts
		£	£	£	£
National	3,194	125,000,000	41,000,000	317,000,000	378,000,000
State	1,403	32,200,000	11,800,000	85,400,000	...
Private	1,323	19,600,000	10,700,000	73,100,000	...
Savings	801	3,300,000	27,500,000	283,900,000	...
Total . .	6,721	180,100,000	91,000,000	759,400,000	...

The above shows a total banking power of 1030 millions sterling.
The National banks showed the following balance-sheets :—

	Liabilities				Assets	
	1880	1889			1880	1889
	£	£			£	£
Capital	130,000,000	166,000,000	Discounts	216,000,000	378,000,000
Issue	66,000,000	26,700,000	Bullion	20,800,000	34,000,000
Deposits	185,000,000	317,000,000	Bonds	75,000,000	30,400,000
Sundries	57,000,000	114,300,000	Sundries	126,200,000	181,600,000
Total . .	438,000,000	624,000,000	Total . .	438,000,000	624,000,000

In the above table capital includes also reserve fund.

The ratio of banking power to population was as follows :—

Year	Banking Power	Population	Banking Power per Head
	£	£	£
1801 . .	7,000,000	5,300,000	1.3
1820 . .	35,900,000	9,600,000	3.8
1840 . .	90,200,000	17,100,000	5.3
1860 . .	140,400,000	31,400,000	4.4
1876 . .	581,600,000	44,400,000	13.1
1889 . .	1,030,500,000	64,000,000	16.1

The distribution of banking power, according to official returns, was :—

States	Million, £ Sterling		
	1850	1860	1880
New England . .	18	34	162
Middle . . .	33	63	274
Southern . . .	19	33	35
Western . . .	4	10	125
Total .	74	140	596

No other than National banks have right of issue, and they compare with the earlier *chartered* banks of issue in 1811-30 as follows :—

Year	Capital	Issue	Deposit
	£	£	£
1811	5,100,000	2,700,000	...
1820	13,000,000	5,500,000	4,100,000
1830	19,800,000	8,100,000	6,800,000
1889	125,000,000	26,700,000	317,000,000

In 1880 the shares of the National Banks were held by 208,000 persons, showing an average banking capital of £700 per shareholder, against £800 in Great Britain. Of 7 million shares, only 26,000 were held in Europe, of which 7000 in Great Britain.

MEXICO

The Banco Nacional, founded in 1881, has a nominal capital of 20 million dollars or £3,000,000 sterling, of which only 40 per cent. is paid up. Its issue in December 1888 was 14 millions, say £2,100,000 sterling, and balance-sheet 48 millions, say £7,200,000. The Bank of London and Mexico has a capital of £300,000, and no issue ; balance-sheet, £1,500,000. There are various land-banks.

CHILE

There are nineteen banks of issue, aggregate capital 23 million dollars, say £2,500,000 ; issue, 17 millions, or £1,800,000. The balance-sheets of these banks in December 1886 showed :—

Bank of	Dollars	£ Sterling
Valparaiso . . .	83,000,000	9,100,000
Chile	66,000,000	7,200,000
Guarantees . . .	50,000,000	5,500,000
Edwards	16,500,000	1,800,000
Fifteen others . .	68,500,000	7,500,000
Total . .	284,000,000	31,100,000

BRAZIL

In December 1886 there were sixteen banks, whose balance-sheets showed as follows :—

Bank	£	Bank	£
Brazil . .	26,900,000	London and Brazil	3,100,000
Rural . .	7,400,000	English . .	2,200,000
Commercial .	5,500,000	International .	2,000,000
Industrial .	3,300,000	Nine others .	11,600,000

Summing up a total of 62 millions sterling. The Bank of Brazil was remodelled in 1872, with a paid-up capital of £3,600,000 in shares of £22 each; it has a reserve fund of £500,000, and a right of issue until December 1900 of £3,000,000 sterling; it must always lend up to 70 per cent. of its capital to planters, at 6 per cent. annual interest.

JAPAN

In December 1889 were published the accounts of 100 National Banks, with an aggregate capital of £7,100,000, the Tokio Bank standing for £3,500,000. Of the total number, 69 paid dividends ranging from 10 to 20 per cent., and 31 paid less than 10 per cent.

ARGENTINA

In 1884 there were six banks at Buenos Ayres, with an aggregate banking power of 35 millions sterling, viz. :—

	Capital, £	Deposits, £	Total, £
B. of Buenos Ayres	6,600.000	13,400,000	20,000,000
National . . .	4,100,000	2,800,000	6,900,000
Four foreign banks	4,400,000	3,600,000	· 8,000,000
Total . .	15,100,000	19,800,000	34,900,000

In 1885 specie payments were suspended, and a number of banks sprung up issuing forced currency notes. In September 1889 there were 52 banks in Buenos Ayres and the other provinces of Argentina, with an aggregate capital of 185 million dollars, nominally 37 millions sterling, but the currency dollar having lost 67 cents of its value, the capital (in July 1890) is only equal to 12 millions sterling. Deposits in like manner were nominally close on 50 millions sterling, equivalent to 17 millions in gold. Banking power is therefore about 29 millions. In September 1889 the aggregate balance-sheets of 24 banks (nothing being stated of the other 28) showed as follows :—

	Gold, $	Paper, $	Nominal Value in £ Sterling	Approxi- mate Real Value in 1890, £
Capital . .	8,500,000	149,600,000	31,600,000	10,500,000
Reserve fund	1,600,000	2,200,000	700,000	200,000
Deposits . .	66,300,000	166,000,000	46,400,000	15,500,000
Discounts .	85,200,000	253,700,000	68,000,000	22,700,000
Cash . . .	28,700,000	28,300,000	10,400,000	3,500,000

Paper issue has risen as follows :—

Year	Million $	Real Value Re- duced to Gold, £
1836 . . .	15,000,000	360,000
1840 . . .	51,000,000	300,000
1852 . . .	125,000,000	1,250,000
1877 . . .	711,000,000	4,500,000
1884 . . .	56,000,000	11,200,000
1890 . . .	270,000,000	18,000,000

In 1881 the old currency was called in and converted, one new dollar being given for 25 old ones. Another

issue called Cedulas is described under *Land Banks*, p. 85.

URUGUAY

Banking power is about 8 millions sterling, discounts in June 1889 showing more or less as follows :—

	£
National Bank	3,800,000
Four foreign banks . . .	4,300,000
Total	8,100,000

Issue and reserve of specie were as follows :—

	Issue, £		Reserve of Specie, £
	1882	1889	1889
National Bank .	...	1,700,000	1,100,000
All other banks .	1,100,000	1,400,000	1,900,000
Total . .	1,100,000	3,100,000	3,000,000

The National Bank suspended specie payments in June 1890.

LAND BANKS

In many countries there are institutions called Land Banks or Mortgage Banks for lending money or debentures on real estate.

France.—The Credit Foncier, founded in 1852, capital £3,600,000, has the power to issue debentures up to £72,000,000. The issue was as follows :—

Year	Issue, £	No. of Mortgages	Average, £
1856	3,050,000	1,390	2,100
1866	31,170,000	12,180	2,500
1873	46,480,000	20,116	2,300

Deducting the amount redeemed, the actual issue in 1873 was £34,700,000. The Credit Agricole, founded in 1860, has a paid-up capital of £800,000; issue outstanding in 1873 about 15 millions sterling.

Germany.—The Bank of Munich has a Mortgage branch, being compelled by law to keep £1,200,000 always lent out to agriculturists at 4 per cent. per annum, the mortgage never to exceed 50 per cent. of the value of the farm. In 1864 it commenced to issue debentures bearing 4½ per cent. interest, the borrower having also to pay ½ per cent. sinking-fund. The borrower in selling these debentures gets barely 90 per cent. cash. In 1871 the issue had reached £5,000,000. The Bank of Nuremberg also grants loans on mortgage. Saxony has four Land Banks of this description, the borrower paying 5 per cent. for forty-one years, when the loan is extinct. The Ritter's Bank of Leipzig is a mutual landowner's bank, making advances only to its members, interest 4 per cent. The Wurtemburg Land Bank makes advances to small proprietors at 6 per cent., including sinking-fund, the loan becoming extinct in twenty-five years. The Mortgage Bank of Prussia, founded in 1810, issues 4 per cent. debentures; the issue and the market price were as follows :—

Year	Issue, £	Maximum	Minimum	Average Price
1815	9,500,000	103	64	84
1835	14,100,000	107	101	104
1845	16,500,000	105	94	100
1868	28,800,000	84	78	81

The above was mainly for impoverished noblemen. The Rent-charge Bank, founded in 1811, had issued to peasant proprietors debentures up to 13 millions sterling prior to 1870; these bore 4 per cent. interest, and sold in the market at 87 per cent. of nominal value; outstanding £11,500,000. The amount advanced on mortgage by

banks and private individuals in 1870 was officially stated thus :—

					£
Prussia	.	.	.	.	190,000,000
Bavaria	.	.	.	.	25,000,000
Saxony	.	.	.	.	26,000,000
Wurtemburg	.	.	.	.	10,000,000
Small States	.	.	.	.	22,000,000
		Total	.	.	273,000,000

In 1837 it was found that many of the nobles had mortgaged their estates beyond their value, in some cases up to 114 per cent. From 1858 to 1867 the authorities sold off 34,000 bankrupt estates, which reduced the sum due by Prussian noblemen to the Land-banks to 25 millions sterling. The Mortgage Bank of Bavaria, distinct from the Munich Bank, was founded in 1848, to enable the peasants to buy their lands. In twenty-two years, down to 1870, the debentures issued by it reached 18½ millions sterling, the amount outstanding being £15,300,000. In 1880 the Land-banks of Germany had an aggregate capital of 18 millions sterling, and the debentures in circulation summed up 80 millions sterling.

Russia.—The Imperial Bank as early as 1859 had advanced 30 millions sterling on mortgage to the nobles, who owed altogether 60 millions sterling. Subsequently a separate office or bank was started as a Mortgage-bank, and in December 1889 the amount of existing loans on mortgage was 196 million roubles, nominally £31,000,000, but at the present exchange only £19,600,000. Moreover, a Land-bank was founded about 1861 to help the peasants to buy their lands from the nobles. According to Sir A. Buchanan, the peasants owed 85 millions sterling in 1875 ; this was perhaps an error, as the *States-man's Year-Book* gives the following :—" Up to December 1889, the Land-bank lent 58 million roubles (say £5,800,000) to 234,000 peasants towards purchasing 4,240,000 acres, valued at £7,300,000, the peasants finding the remaining £1,500,000. The peasants did not buy individually, but in 7240 villages or associations. The above purchases only refer to Beggar's Lots (see *Land*), as the peasants in ten years, ending 1870, became masters of 35,000,000 acres.

Norway.—The Hypothek Bank was founded in 1852 to lend on mortgage ; it belongs to the State, and has a capital of £600,000. The outstanding loans in December 1888 reached £4,600,000, and the bonds in circulation £4,200,000.

Austria.—The Bank of Vienna in 1878 held mortgages on real estate of £10,300,000, of which £7,900,000 was on lands. In 1886 the various banks held mortgages to the amount of £65,000,000.

Italy.—The Credito Fondiaro was founded in 1866 at Naples, with branches at Milan, &c., to make advances in 5 per cent. debentures on real estate, no loan to exceed £20,000, nor to be for more than 50 per cent. of the value of the property. The borrower pays also 1 per cent. sinking-fund ; the debentures usually sell about 80 per cent. of nominal value. Issue averages £500,000 per annum. In 1870 two other Land-banks were founded, the Agricola Italiana and Agricola Nazionale. The amount of all mortgages held by these Land-banks in 1887 was £28,000,000 sterling.

Spain and Portugal.—There are no Land-banks in Spain ; usurers have a free field. Murcia is mortgaged up to 65 per cent. of its value, and the usurers get 10 per cent. of the crops. The Credito Portuguez was founded in 1866 to rescue Portuguese landowners from usurers ; it lends money at 6 per cent. in debentures, the advances down to 1869 reaching £1,100,000 on 1630 estates of distressed noblemen. In 1861 the mortgages then held in Portugal were :—

Loans by	Amount, £	Interest
Usurers . . .	6,300,000	15 per cent.
Religious houses .	1,600,000	5 ,,
Total . .	7,900,000	...

Sweden.—The General Mortgage Bank, founded in 1861, has 47,000 shareholders, the qualification being the possession of property worth £50, or upwards. In 1877, debentures had been issued to the amount of 13¼ millions sterling, of which 2 millions had been redeemed. Borrowers pay 6 per cent. per annum, which cancels the loan in sixty years, the bank reserving ¼ per cent. for expenses, which, however, do not exceed 15d. per £100. The debentures rarely fall below 100 ; the reserve fund is £900,000, one-half in Government stock. The House-Mortgage Bank is on similar principles, applicable to house property.

Denmark.—The Landman's Bank advances on mortgages of land in 4 per cent. debentures, which sell in the market at 85 or 90 per cent. of their nominal value. Sinking-fund 1 per cent. ; borrowers pay altogether 5 per cent.

Switzerland.—There are no distinct Land-banks ; mortgages on land amount to one-fourth the estimated value.

Brazil.—The Rural Mortgage Bank was established in 1853 to make loans to planters ; capital £900,000, reserve fund £400,000 sterling. The Bank of Brazil is, moreover, by its charter obliged to have always £2,600,000 in similar loans at 6 per cent. annual interest.

Chile.—There are several Mortgage-banks which issue Cedulas on houses and lands. The amount of these Cedulas in 1888 was 76 millions, say £8,300,000 sterling.

Argentina.—The Mortgage Bank of Buenos Ayres was founded in 1873, to make advances in 6 per cent. debentures up to half the value of the houses or lands mortgaged, the Bank charging 1 per cent. commission, its debentures being, moreover, guaranteed by the State. The National Mortgage Bank was established on like principles in 1886. Similar banks have been founded in Santa Fé and other provinces.

The balance-sheets for December 1888 showed as follows :—

	Issued	Redeemed	Balance Outstanding
	£	£	£
Mortgage Bank of Buenos Ayres . .	47,000,000	11,300,000	35,700,000
National Mortgage Bank	15,000,000	600,000	14,400,000
Total . .	62,000,000	11,900,000	50,100,000

The above was the nominal amount, but the currency was at 33 per cent. discount. The real value of debentures in circulation was about £33,500,000.

In December 1889 the actual Cedulas in circulation were approximately :—

	Millions	Nominal Value	At Current Exchange
	$	£	£
National Mortgage Bank	120	24,000,000	10,000,000
Buenos Ayres Mortgage Bank	280	56,000,000	23,000,000
Total . .	400	80,000,000	33,000,000

SAVINGS-BANKS

The first was established at Brunswick in 1765, the second at Hamburg in 1778. Mrs. Wakefield founded one in England in 1803. The first in France was in 1818

at Paris. In 1835 we find the following returns of France, Vienna, and Prague :—

	Depositors	Amount, £
France	122,000	2,500,000
Vienna . . .	57,000	1,400,000
Prague	18,000	520,000

From this time they began to grow rapidly in many countries. In the following table, 1889 includes latest information as regards some countries for which we have no particulars for that year :—

	1840	1850	1860	1870	1889
	£	£	£	£	£
United Kingdom	23,400,000	30,100,000	41,300,000	53,100,000	107,200,000
France	7,600,000	5,400,000	15,100,000	27,400,000	111,800,000
Prussia	4,000,000	5,500,000	14,500,000	76,600,000	144,600,000
Russia	...	...	1,100,000	2,400,000	7,200,000
Austria	3,000,000	4,500,000	28,000,000	40,300,000	122,600,000
Italy	700,000	1,600,000	12,400,000	14,800,000	69,200,000
Switzerland	...	700,000	5,100,000	11,600,000	23,700,000
Spain	...	...	200,000	1,000,000	2,000,000
Belgium and Holland	...	1,800,000	2,200,000	4,500,000	16,400,000
Scandinavia	...	3,100,000	7,200,000	14,600,000	44,100,000
Europe . . .	38,700,000	52,700,000	127,100,000	246,300,000	648,800,000

	Number of Depositors			Number per 1000 Inhabitants		
	1850	1870	1882	1850	1872	1882
United Kingdom . .	1,060,000	2,620,000	3,715,000	40	85	95
France	586,000	2,050,000	4,150,000	16	57	110
Germany	530,000	2,200,000	5,000,000	16	55	111
Russia	...	150,000	200,000	...	2	2
Austria	160,000	1,300,000	1,850,000	5	37	48
Italy	170,000	570,000	1,970,000	3	23	66
Belgium and Holland .	40,000	180,000	310,000	5	20	31
Switzerland . .	52,000	512,000	1,080,000	20	195	360
Scandinavia . .	150,000	900,000	1,600,000	25	110	180
Europe	2,748,000	10,482,000	19,875,000	12	40	67

United Kingdom.—The savings-banks of the United Kingdom have shown as follows :—

Year	Amount of Deposits, £			Shillings per Inhabitant		
	England	Scotland	Ireland	England	Scotland	Ireland
	£	£	£			
1830	12,600,000	...	910,000	18	...	2
1840	20,700,000	520,000	2,200,000	25	4	5
1850	27,680,000	1,080,000	1,360,000	30	7	4
1860	36,700,000	2,410,000	2,140,000	37	16	7
1870	46,230,000	4,130,000	2,690,000	40	25	10
1880	66,900,000	7,200,000	3,700,000	52	39	15
1888	88,600,000	10,400,000	5,300,000	62	50	22

France.—The official returns show as follows :—

Year	Depositors	Amount, £
1835	80,000	1,700,000
1840	311,000	6,800,000
1850	586,000	3,000,000
1860	1,126,000	13,600,000
1870	2,050,000	27,400,000
1880	3,508,000	46,200,000
1886	4,937,000	88,400,000
1888	6,492,000	111,800,000

In 1888 the Post-Office savings-banks showed £12,000,000 in deposits, the average to each depositor

being £9, 4s. ; the private savings-banks £99,800,000, average £18, 6s.

Russia.—In 1888 the Government savings-banks showed £820,000 at St. Petersburg, £640,000 at Moscow, and £7,200,000 for the whole Empire.

Italy.—The number of depositors and amount showed :—

Year	Depositors	Amount, £
1850	170,000	2,200,000
1870	571,000	14,800,000
1881	1,970,000	33,600,000
1888	3,510,000	69,200,000

The returns for 1887 make up as follows :—

	Offices	Depositors	Deposits, £
Post-office . . .	4,237	1,571,000	9,600,000
Ordinary . . .	395	1,295,000	40,300,000
Co-operative . .	619	390,000	13,800,000
Total . .	5,251	3,256,000	63,700,000

Austria.—Depositors and amount are shown approximately as follows :—

Year	Depositors	Amount, £
1850	160,000	19,600,000
1870	1,300,000	40,300,000
1881	1,850,000	85,100,000
1887	3,017,000	122,600,000

The returns for 1887 give the following aggregates (taking the florin at 20 pence) :—

	Depositors	Amount, £		Depositors	Amount, £
Austria	2,629,000	91,300,000	Post-office . . .	722,000	5,200,000
Hungary . . .	584,000	31,300,000	Ordinary . . .	2,491,000	117,400,000
Total . .	3,213,000	122,600,000	Total . .	3,213,000	122,600,000

Belgium.—The first was opened in 1835, in which year the deposits reached £720,000. Subsequent returns are as follows :—

Year	Depositors	Amount, £
1840	38,500	2,060,000
1850	29,500	1,100,000
1860	32,400	1,050,000
1870	52,000	800,000
1880	200,600	5,040,000
1888	599,000	10,400,000

The above does not include People's Banks, which showed as follows :—

Year	Capital, £	Discounts, £	Deposits, £
1861	1,400,000	300,000	200,000
1870	2,700,000	600,000	900,000
1880	3,200,000	800,000	1,200,000
1888	2,800,000	900,000	1,300,000

Holland.—The returns of 1888 for State savings-banks, and of 1885 for private ones, sum up thus :—

	Depositors	Amount, £
State	202,000	1,100,000
Private	270,000	3,900,000
Total	472,000	5,000,000

In 1888 there were 499,000 depositors, holding a total of £5,980,000.

Scandinavia.—The returns for 1886–88 were as follows :—

	Depositors	Amount, £
Denmark	697,000	20,900,000
Sweden	1,010,000	13,700,000
Norway	452,000	10,400,000
Total	2,159,000	44,100,000

United States.—No distinct returns were kept before 1873 ; the returns since then show as follows :—

Year	Depositors	Amount, £
1873	2,190,000	135,200,000
1880	2,528,000	185,400,000
1884	3,071,000	227,800,000
1889	4,022,000	283,900,000

The following table shows the States where savings banks are most in use (1889) :—

	Depositors	Amount, £	Depositors per 100 Inhab.	Amount per Inhabitant, £
New York	1,363,000	109,000,000	20	16.4
Massachusetts	983,000	65,500,000	42	26.5
Connecticut	288,000	22,000,000	35	27.0
California	114,000	18,100,000	10	15.6
Pennsylvania	213,000	13,500,000	4	2.4
N. Hampshire	145,000	12,000,000	31	25.5
Rhode Island	123,000	12,100,000	34	33.0
Maine	125,000	8,600,000	15	10.1
Maryland	123,000	7,100,000	10	5.8
New Jersey	115,000	6,400,000	8	4.2
Various	430,000	9,600,000	...	...
Total	4,022,000	283,900,000	6	4.4

Canada.—The deposits were as follow :—

Year	Sum		1887
	£		£
1867	300,000	Ontario	3,200.000
1879	1,900,000	Quebec	730,000
1887	4,060,000	Nova Scotia, &c.	130,000

Australia.—In 1888 the returns were as follows :—

	Depositors	Amount, £	Depositors per 100 Inhab.	Amount per Inhabi- tant, £
New South Wales	128,000	4,040,000	12	3.7
Victoria	248,000	4,880,000	23	4.5
Queensland	43,000	1,610,000	11	4.2
South Australia	62,000	1,760,000	20	5.6
New Zealand	103,000	2,690,000	17	4.4
Tasmania	23,000	470,000	16	3.2
Western Australia	3,000	30,000	7	0.7
Total	610,000	15,480,000	17	4.2

The aggregate of the seven colonies was as follows :—

Year	Depositors	Amount, £	Depositors per 100 Inhabitants	Amount per Inhabitant, £
1861	28,800	1,360,000	2	1.1
1871	114,000	3,660,000	6	1.9
1881	308,000	9,420,000	11	3.3
1888	610,000	15,480,000	17	4.2

India.—The official returns for 1884 and 1888 (taking the rupee at 18 pence) were :—

	1884	1888	1888		
				No.	Amount
					£
Depositors	204,000	332,000	Europeans	65,000	1,100,000
Amount, £	3,010,000	4,940,000	Natives	267,000	3,840,000

There are 6150 savings-banks, of which 5960 belong to the Post-Office.

BANKRUPTCY

The averages for the years 1879–81 in five principal countries were :—

	No. of Failures	Amount	Ratio to Commerce
		£	Per Cent.
United Kingdom	13,720	31,300,000	5½
France	5,580	10,200,000	3
Austria	1,414	1,820,000	1⅓
United States	5,715	16,300,000	5½
Canada	920	2,730,000	8

United Kingdom

Wholesale failures in the years 1880–89 were as follows :—

Year	London	Provinces	Scotland	Ireland	Total
1880	385	972	99	22	1,478
1882	399	823	78	14	1,314
1883	377	885	83	16	1,361
1889	193	563	51	11	818

Wholesale and retail for nineteen years in England and Wales showed thus :—

Years	Annual Average		Average per Fail- ure, £	Assets, Annual Average, £	Percent- age of Assets
	Number	Sum, £			
1870–72	6,039	15,300,000	2,500	4,600,000	30
1873–75	7,766	21,600,000	2,800	6,300,000	29
1876–78	10,077	23,500,000	2,300	7,100,000	30
1879–81	11,052	21,200,000	1,930	6,500,000	31
1882–84	7,263	18,100,000	2,500	5,200,000	29
1885–88	4,587	8,300,000	1,800	2,800,000	33

The ratio of assets for the years 1870 and 1881 in England and Wales were :—

Assets	Number		Percentage	
	1870	1881	1870	1881
Under 5 per cent. .	123	963	7	25
5–25 ,, .	833	2,256	44	58
25–40 ,, .	316	349	17	9
Over 40 ,, .	616	322	32	8
Total . .	1,888	3,890	100	100

From a judicial report in 1881 are taken the following :—

Year	No. of Cases	Amount	Assets	Ratio of Assets
		£	£	Per Cent.
1870 . . .	5,002	17,400,000	5,300,000	30
1880 . . .	10,298	16,200,000	4,600,000	28
Average 10 years	9,515	20,300,000	6,200,000	31

In eight years ending 1888 the bankruptcies averaged thus : liabilities, £13,100,000 ; assets, £3,300,000.
The cases liquidated in court showed that law-costs absorbed 40 per cent. of assets.
In the eighteenth century the number of bankruptcies in England averaged 177 yearly down to 1750, and 460 in the fifty years following.
In Scotland the bankruptcies were :—

Period	Annual Average		Average per Failure, £	Percentage of Assets
	No.	Amount, £		
1874–80	603	1,360,000	2,270	46
1881–84	412	6,300,000	15,200	11
1885–88	425	1,450,000	3,400	46
15 years	505	2,690,000	5,300	25

Some of the above were for bankruptcies of previous years, liquidated as above.
The aggregate of business in Ireland that passed through the Court of Bankruptcy in five years ending 1880 was as follows :—

Liabilities . . £2,750,000 | Law-costs . . . £245,000
Assets . . . . 805,000 | To creditors . . 560,000

The average dividend, therefore, was 20 per cent. on the liabilities. Law-costs absorbed 30 per cent. of the assets.

Irish bankruptcy business from 1880 to 1887 showed :—

			Per Annum
Number of bankruptcies	4,124		516
Liabilities, £ .	9,700,000		1,210,000

This gives an average of £2300 per failure.
France.—Official returns give the following :—

Years	Annual Average	
	No. of Failures	Ratio of Assets
		Per Cent.
1840–50 . . .	3,480	31
1860–70 . . .	5,120	21
1878–81 . . .	5,580	17
1881–84 . . .	7,135	...
1885	8,024	25

The following table shows the number of failures compared with that of merchants and traders :—

Year	No. of Merchants	Failed	Ratio to Merchants	Failures over £2000
			Per Cent.	Per Cent.
1844 . . .	1,414,000	3,011	2.1	52
1854 . . .	1,420,000	3,691	2.6	48
1864 . . .	1,410,000	4,642	3.3	43
1874 . . .	1,606,000	5,508	3.4	54

Not only has the ratio of failures risen, but also the average amount per failure.
The following table is for fourteen years ending 1885 :—

Period	Annual Average		
	No. of Failures	Amount, £	Amount per Failure, £
1872–75 . . .	5,442	9,200,000	1,700
1876–80 . . .	5,832	10,600,000	1,800
1881–84 . . .	7,135	10,700,000	1,500
1885	8,024	14,200,000	1,750

Austria.—The annual number of bankruptcies was as follows :—

1871–75	909
1876–80	1,304
1881–83	1,017

No returns as to liabilities or assets.
Germany.—The number of bankruptcies in 1886 was 5912, against 5905 in 1882 ; amount not stated.
Australia.—There are no returns for Western Australia. The aggregate for the other six colonies showed as follows :—

Year	Failures	Liabilities	Assets	Ratio of Assets
		£	£	Per Cent.
1861 . . .	2,037	2,000,000	1,095,000	55
1871 . . .	2,257	1,490,000	695,000	47
1881 . . .	3,632	1,720,000	1,230,000	72
1888 . . .	2,769	2,260,000	1,510,000	67

The returns for 1888 were as follows :—

	Failures	Liabilities	Assets	Ratio of Assets
		£	£	Per Cent.
N. S. Wales . .	851	660,000	460,000	70
Victoria . . .	479	350,000	185,000	53
Queensland . .	249	260,000	120,000	46
South Australia .	219	80,000	60,000	75
New Zealand . .	881	865,000	670,000	77
Tasmania . . .	90	45,000	15,000	33
Total . .	2,769	2,260,000	1,510,000	67

UNITED STATES

The annual averages have been as follows since 1857 :—

Period	Number of Failures	Amount, £	Amount per Failure, £
1857–60 . . .	3,262	23,500,000	7,100
1861–65 . . .	1,830	10,600,000	5,800
1866–69 . . .	2,425	15,100,000	6,200
1870–75 . . .	4,882	30,500,000	6,100
1876–80 . . .	7,970	32,400,000	4,100
1881–86 . . .	8,823	28,300,000	3,200
1889 . . .	11,719	29,200,000	2,400

CANADA

Years	Number	Amount, £	Average, £
1879–80 . . .	1,060	3,080,000	3,000
1881–82 . . .	625	1,450,000	2,300
1885	1,246	1,920,000	1,600
1886	1,186	2,320,000	2,000

REMARKABLE CRISES

1763. Amsterdam, originating with the house of De Neufville. Failures—20 in Holland, 20 in England, 37 in Hamburg
1773. Failures in Holland exceeding 10 millions
1799. Hamburg, 82 failures, 2 millions.
1814. England, 240 banks suspended
1825. Manchester, failures 2 millions
1831. Calcutta, failures 15 millions.
1837. United States "Wild Cat" crisis; all banks closed.
1839. Bank of England saved by Bank of France. Severe also in France, where 93 companies failed for 6 millions.
1844. England. State loans to merchants.
1847. England, failures 20 millions; discount 13 per cent.
1857. United States, 7200 houses failed for 111 millions.
1866. London, Overend-Gurney; failures 100 millions.

BANQUET

One of the greatest on record was that given at Paris by President Carnot, 19th July 1889, to 15,000 mayors, senators, deputies, and other officials. There were 195 cooks, 1050 waiters, 80,000 plates, 30,000 loaves, 23,000 bottles of wine, 600 gallons soup, 3 tons fish, 32 cwts. beef, and 7200 poultry, with 6 tons ice.

BATHS

Baths.—The use of baths among the working-classes in London is shown by the receipts thus: 1850, £9,800; 1860, £25,000; 1880, £41,000.

BATTLES

	Men Engaged	Hors de Combat	Per Cent.
Agincourt . .	62,000	11,400	18
Alma	103,000	8,400	8
Bannockburn .	135,000	38,000	28
Borodino . .	250,000	78,000	31
Cannæ. . . .	146,000	52,000	34
Cressy	117,000	31,200	27
Gravelotte. . .	396,000	62,000	16
Sadowa . . .	291,000	33,000	11
Thrasymene . .	65,000	17,000	27
Waterloo . . .	221,000	51,000	23

Date	Battle	Won by	Lost by	Went into Action		Losses of		Per Cent. of Loss	
				Victors	Van-quished	Victors	Van-quished	Victors	Van-quished
1862 . . .	Antietam	Federals	Confederates	87,000	97,000	11,000	20,000	13	20
1805 . . .	Austerlitz	French	Austrians	70,000	84,000	12,000	26,000	17	31
1813 . . .	Bautzen	French	Prussians	150,000	110,000	28,000	24,000	18	21
1863 . . .	Gettysburg	Federals	Confederates	117,000	68,000	17,000	27,000	14	40
1870 . . .	Gravelotte	Germans	French	270,000	126,000	35,000	27,000	13	22
1806 . . .	Jena	French	Prussians	40,000	70,000	4,000	27,000	10	39
1813 . . .	Leipzig	Germans	French	300,000	171,000	47,000	60,000	16	36
1859 . . .	Magenta	French	Austrians	47,000	61,000	5,000	10,000	11	17
1800 . . .	Marengo	French	Austrians	28,000	40,000	7,000	12,000	25	30
1812 . . .	Moscow	French	Russians	120,000	125,000	23,000	51,000	19	40
1866 . . .	Sadowa	Prussians	Austrians	141,000	150,000	9,000	24,000	7	17
1870 . . .	Sedan	Prussians	French	190,000	124,000	9,000	38,000	5	31
1859 . . .	Solferino	French	Austrians	124,000	163,000	15,000	22,000	12	14
1809 . . .	Wagram	French	Austrians	140,000	90,000	32,000	25,000	22	28
1815 . . .	Waterloo	British	French	101,000	120,000	22,000	29,000	22	24

BEER

Table of yearly production and consumption (1886–89) :—

Number of Breweries	Millions of Gallons		Value of Beer Produced, £
	Produced	Consumed	
U. Kingdom .	16,114	1,040	1,022	69,000,000
France . . .	2,722	186	193	12,000,000
Germany . .	26,458	930	910	62,000,000
Russia . . .	1,592	92	92	6,200,000
Austria . . .	1,962	290	280	19,000,000
Italy	135	4	5	300,000
Switzerland .	417	20	21	1,300,000
Belgium . .	1,248	204	206	14,000,000
Holland . .	560	32	32	2,100,000
Denmark . .	441	25	25	1,600,000
Sweden . . .	253	21	21	1,400,000
Norway . . .	56	13	13	900,000
Europe . . .	51,958	2,857	2,820	189,800,000
United States .	3,293	753	780	40,000,000
Australia . .	187	18	22	1,200,000
India . . .	24	3	5	200,000
Total . .	55,462	3,631	3,627	231,200,000

The breweries of the world consume yearly 4 million tons of barley (say 160 million bushels), and 70,000 tons of hops. Germany has an annual surplus of 8000 tons of hops, Austria 3000, but England and France have to import some. British breweries consume 56 million bushels barley, and 70,000 tons sugar.

RETROSPECT OF PRODUCTION

	Millions of Gallons						
	United Kingdom	France	Germany	Austria	Belgium	United States	Total
1840	650	92	500	160	100	23	1,525
1850	710	106	600	180	120	36	1,752
1860	770	140	700	200	140	100	2,050
1870	980	150	800	220	153	204	2,507
1880	1,020	180	815	240	200	413	2,868
1887	1,040	186	930	290	204	612	3,262

The figures for Germany, Austria, and Belgium previous to 1870 are conjectural.

ENGLAND AND WALES

The annual consumption in England and Wales has been :—

Period	Million Gallons	Per Inhab.	Period	Million Gallons	Per Inhab.
1660-1700	. 255	44	1801-1830	. 335	30
1701-1750	. 215	35	1831-1860	. 560	33
1751-1800	. 252	32	1861-1880	. 835	36

The price per gallon during 680 years has ruled thus :—

Period	Pence	Period	Pence
1201-1300	 3	1701-1800	 11
1301-1600	 5	1801-1880	 17
1601-1700	 6	1882	 20

The above are according to weight of silver, but the nominal price was, for example, in the thirteenth century one penny.

The strength varies as follows :—

	Alcohol	Bushels of Malt per Barrel
Burton ale	8.2 ...	4.5
Bass's ale . . .	8.4 ...	4.2
Edinburgh ale . . .	4.4 ...	1.8
Guinness's ale . .	6.8 ...	2.9
London porter . .	4.1 ...	1.9
London beer . . .	3.9 ...	1.7
Lager beer . . .	3.2 ...	1.5

The annual consumption of malt in England has been as follows :—

Period	Bushels	Duty, Pence	Bushels per Inhabitant
1700- 20 . . .	19.2	6	3.4
1720-50 . . .	26.7	6	4.2
1760-80 . . .	27.6	9	3.6
1790-1800 . . .	18.0	16	2.1
1810-20 . . .	23.7	50	2.2
1830-50 . . .	32.7	31	2.1
1850-70 . . .	39.8	31	1.9

In 1888 the consumption was about 48 million bushels in England, 3 millions in Scotland, and 5 millions in Ireland, total 56 millions, or two bushels per barrel of beer.

GERMANY (1885)

	Number of Breweries	Product, Gallons Beer	Gallons per Inhabitant
Prussia . . .	7,691	540,000,000	19.2
Bavaria . .	5,395	277,000,000	50.5
Wurtemburg .	7,381	66,000,000	33.0
Other States .	4,539	47,000,000	4.3
Total . .	25,006	930,000,000	...

The statistics of German breweries showed as follows :—

Year	Beer, Gallons	Tons Grain Consumed	Beer per Inhabitant, Gallons	Lbs. Grain per Inhabitant
1873 . .	830,000,000	780,000	20	40
1880 . .	820,000,000	770,000	18	37
1887 . .	990,000,000	930,000	21	43
15 years' average }	880,000,000	830,000	19½	39

In the above years nearly 99 per cent. of the beer produced was consumed in Germany, exports ranging from 10 to 18 million gallons.

AUSTRIA

Year	Millions of Gallons			Number of Breweries
	Austria	Hungary	Total	
1870	204	16	220	2,743
1880	231	9	240	2,247
1887	275	15	290	1,962

UNITED STATES

Year	Number of Breweries	Capital, £	Gallons
1863	1,269	3,100,000	53,000,000
1870	2,785	13,500,000	204,000,000
1882	2,557	31,800,000	525,000,000
1889	1,964	...	777,000,000

Statistics of production and consumption were as follows :—

Year	Product, Gallons	Consumption, Galls.	Consumption per Inhab.
1875	293,000,000	295,000,000	6.5
1880	413,000,000	414,000,000	8.3
1885	594,000,000	596,000,000	9.5
1889	777,000,000	780,000,000	12.0

The principal beer-producing States were as follows :—

	1878	1884	1889
	Gallons	Gallons	Gallons
New York . . .	109,000,000	204,000,000	250,000,000
Pennsylvania . .	31,000,000	62,000,000	71,000,000
Ohio	30,000,000	53,000,000	65,000,000
Illinois	18,000,000	35,000,000	62,000,000
Wisconsin . . .	16,000,000	45,000,000	55,000,000
Missouri . . .	17,000,000	35,000,000	52,000,000
New Jersey . .	16,000,000	28,000,000	42,000,000
Massachusetts .	19,000,000	27,000,000	31,000,000
Various . . .	60,000,000	99,000,000	149,000,000
Total . .	316,000,000	588,000,000	777,000,000

BEES

A hive of 5000 bees produces about 50 lbs. of honey yearly, and multiplies tenfold in five years. The ordinary value of a hive in Europe is £1 sterling.

Bees eat 20 lbs. honey in making 1 lb. of wax.

	Hives			Hives
France . . .	950,000	Belgium . .	200,000
Germany . .	1,910,000	Holland . .	240,000
Russia . .	110,000	Denmark . .	90,000
Austria . .	1,550,000	Greece . .	30,000
Spain . .	1,690,000	United States .	2,800,000

The largest bee-owner in the world is Mr. Harbison of California, who has 6000 hives, producing 200,000 lbs. honey yearly, worth £8000. There are in the United States 70,000 bee-growers, but the average which they get from their hives is only 22 lbs., whereas the average in England is 50 lbs. In 1888 there were in Ireland 28,600 hives, of which 9100 in movable frames ; annual product 210 tons of honey, worth £12,000. The average is only 16 lbs. honey per hive, but in Kildare it reached 37 lbs. In 1889 the product in France was :—

	Tons	Value, £
Honey	6,600	370,000
Wax	2,000	180,000

The ordinary value is 10d. per lb. for wax and 6d. for honey.

In Austria the production of wax averages 2000 tons. The total annual yield of bees in Europe may be estimated thus :—

	Tons	Value, £
Honey	40,000	2,200,000
Wax	15,000	1,350,000
Total . .	55,000	3,550,000

One hundred bees weigh an ounce. The wing of a bee makes 190 movements a second, of a wasp 110, of a fly 330.

BEETROOT

This is grown both as cattle food and for making sugar. The crop ranges from 5 tons of roots per acre in Russia, to 9 tons in Germany. In England it has given 12 tons per acre, equivalent for cattle food to 4 tons of hay, and worth 16 shillings per ton ; but it has been found too costly in cultivation. Experimental growing in Canada has proved most successful. It takes about 11 tons of roots in Europe generally per ton of beet sugar, the average of saccharine matter being 9 per cent. as compared with 4 per cent. twenty years ago. In Germany 8 tons of roots give a ton of sugar.

The acreage and crop of all kinds of beetroot are approximately as follows :—

	Acres	Tons, Beet	Sugar, Beet
France . .	1,310,000	13,300,000	5,100,000
Germany . .	1,700,000	12,400,000	8,300,000
Russia . .	1,000,000	5,200,000	5,200,000
Austria . .	1,100,000	6,500,000	6,500,000
Belgium . .	145,000	2,100,000	2,100,000
Holland . .	60,000	600,000	400,000
Denmark . .	30,000	300,000	300,000
Europe . .	5,345,000	40,400,000	27,900,000

The *Journal de la Société Stat.* of Paris mentions that the production of beet sugar in the United States during five years ending 1884 averaged 337,000 tons per annum, from which must be inferred that the Union grows about 3 million tons of beetroot. The following table shows approximately the growth of all kinds of beetroot at different dates :—

	1836	1850	1870	1880	1888
	Tons	Tons	Tons	Tons	Tons
France .	700,000	1,500,000	6,600,000	14,800,000	13,300,000
Germany	40,000	550,000	2,700,000	11,200,000	12,400,000
Russia .	...	100,000	2,200,000	4,800,000	5,200,000
Austria .	10,000	200,000	1,500,000	5,500,000	6,500,000
Belgium .	...	150,000	800,000	1,800,000	2,100,000
Holland .	...	...	100,000	440,000	400,000
Denmark	...	...	200,000	300,000	300,000
Europe	750,000	2,500,000	14,100,000	38,840,000	40,200,000

It appears that two-thirds of the total crop is used for making sugar, the product of which now reaches 2,800,000 tons yearly in all the world.

BELLS

The largest are the following :—

	Tons		Tons		Tons
Moscow . .	202	Rouen . . .	18	Montreal . .	12
Burmah . .	117	Olmutz . .	18	Cologne . .	11
Pekin . . .	53	Vienna. . .	18	Oxford. . .	8
Novgorod .	31	St. Paul's . .	16	St. Peter's .	8
Notre Dame	18	Westminster .	14	...	

Bell-metal should have 77 parts copper and 23 tin.

BIRDS

In hatching, the number of days that birds sit are :—

	Days		Days
Pigeon . . .	14	Duck . . .	30
Canary . . .	14	Goose . . .	30
Hen	21	Parrot . . .	40
Turkey . . .	28	Swan . . .	42

The ages to which birds attain are :—

	Years		Years		Years
Wren . . .	3	Lark . . .	18	Sparrow . .	40
Thrush . .	10	Nightingale.	18	Goose . .	50
Hen . . .	10	Pigeon . .	20	Pelican . .	50
Robin . .	12	Linnet . .	23	Parrot . .	60
Blackbird .	12	Canary . .	24	Heron . .	60
Goldfinch .	15	Crane. . .	24	Crow . . .	100
Partridge .	15	Peacock . .	24	Swan . . .	100
Pheasant .	15	Skylark . .	30	Eagle. . .	100

The flight of the following birds per hour is :—

Hawk . . .	150 miles	Rook . . .	60 miles
Eider-duck . .	90 ,,	Pigeon. . .	40 ,,

Carrier-pigeons from Paris to Versailles, ten miles, usually take twenty minutes. In November 1882 some flew from Canton Vaud to Paris, 160 miles, in 6½ hours.

The departure and return of birds of passage from England (*Brit. Assoc. Report*) are usually on the following dates :—

	Leave England	Return	Days Absent
Cuckoo . . .	August 25th	April 14th	232
Blackcap . .	October 10th	,, 22nd	194
Martin . .	,, 12th	,, 14th	184
Swallow. . .	,, 15th	,, 10th	177

Birds' nests are used in China for making soup; 9,000,000 are imported yearly into Canton, valued at 10s. per oz., fifty weighing about 1 lb.

BIRTHS

The birth-rate per 1000 of population was as follows :—

	1821-40	1841-60	1861-80	1881-85		1841-60	1861-80	1881-85
France . . .	29.7	26.7	25.8	24.7	Belgium . .	30.2	32.0	31.0
Prussia . . .	41.0	38.6	39.1	37.2	Denmark . .	32.8	31.4	32.5
Sweden . . .	33.1	32.0	31.4	29.4	England . .	33.4	35.1	33.3
Norway . . .	31.3	32.4	30.8	30.9	Scotland . .	...	35.1	33.0
Russia . . .	44.6	45.5	49.6	48.7	Ireland . .	...	26.2	24.0
Saxony . . .	38.1	39.3	41.5	41.9	Switzerland .	...	31.0	28.2
Wurtemburg .	...	...	41.8	37.7	Italy . .	...	37.2	37.8
Austria . . .	39.5	40.3	39.0	38.3	Spain . .	...	37.1	...
Bavaria . . .	30.7	33.2	39.2	38.7	Hungary . .	...	...	45.0
Paris . . .	33.9	31.8	28.8	26.7	Roumania . .	...	...	37.4
Holland . . .	...	34.9	36.3	34.8	Australia . .	...	...	35.5

The following table of birth-rate for **various cities is** not for any uniform date or period :—

Alexandria .	45.0	Dresden .	35.4	Munich . .	39.5
Amsterdam .	36.7	Dublin .	29.1	Naples . .	32.0
Barcelona .	29.2	Edinburgh .	32.2	New York .	39.4
Berlin . . .	37.5	Geneva . .	24.3	Nottingham .	36.7
Birmingham .	37.6	Glasgow . .	37.4	Paris . . .	30.5
Bombay . .	25.6	Hague . .	39.7	Philadelphia .	36.0
Boston . .	30.0	Hamburg .	37.5	Rio Janeiro .	35.5
Breslau . .	37.7	Havana . .	25.4	Rome . . .	27.2
Brighton . .	30.6	Hull . . .	36.4	Rotterdam .	38.8
Bristol . .	34.5	Leeds . .	36.8	St. Louis . .	30.0
Brussels . .	34.7	Liverpool .	37.6	St. Petersburg	37.8
Bucharest .	29.5	London . .	34.7	Sheffield . .	38.0
Buda-Pesth .	35.8	Lyons . .	26.0	Stockholm .	33.0
Buenos Ayres	31.7	Madras . .	39.0	Turin . . .	31.5
Christiania .	34.5	Madrid . .	37.5	Venice. . .	30.2
Copenhagen .	39.1	Manchester .	36.9	Vienna . .	39.2

The sexes of children born average as follows :—

	Per 1000				Per 1000	
	Males	Females			Males	Females
England .	511	489		Portugal .	515	485
Scotland .	514	486		Holland .	513	487
Ireland . .	515	485		Belgium .	514	486
U. Kingdom	512	488		Denmark .	513	487
France . .	513	487		Sweden . .	512	488
Prussia . .	514	486		Norway . .	514	486
Russia . .	508	492		Switzerland	512	488
Austria . .	516	484		Greece . .	519	481
Italy . . .	517	483		Roumania .	521	479
Spain . .	516	484		Europe . .	513	487

Births occur according to months as follows :—

	Scotland	France	Germany	Italy	Greece	Spain	Holland
January .	100	105	103	107	122	114	106
February .	93	110	105	114	119	108	115
March . .	103	109	103	110	98	112	112
April . .	104	106	100	106	97	102	104
May . .	106	99	97	95	88	100	94
June . .	104	95	95	89	85	89	86
July . .	102	96	96	91	88	88	86
August . .	96	96	98	93	88	91	96
September .	96	97	104	100	94	98	103
October . .	101	95	100	98	110	100	99
November .	96	97	100	98	113	97	99
December .	99	95	99	99	98	101	100
Total .	1,200	1,200	1,200	1,200	1,200	1,200	1,200

	Sweden	Norway	Denmark	Geneva	Algeria	Hungary	Belgium	Average
January . .	106	108	104	105	95	108	105	107
February . .	106	108	99	106	136	99	103	107
March . . .	107	107	110	112	64	105	112	107
April . . .	102	102	107	111	124	98	104	103
May . . .	98	100	104	107	107	99	101	99
June . . .	94	97	98	96	109	95	95	94
July . . .	92	94	96	85	110	98	96	93
August . .	91	96	98	98	92	104	98	95
September .	108	111	102	94	83	102	96	101
October . .	99	99	97	99	90	103	97	99
November .	96	83	91	90	90	97	95	97
December .	101	98	94	97	100	92	98	98
Total .	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200

The number of births to 100 marriages was as follows :—

	1861-80	1881-85		1881-85
England . .	407	420	Germany . .	439
Scotland . .	447	439	Russia . . .	500
Ireland . .	520	540	Norway . . .	430
France . . .	304	305	Switzerland .	398
Belgium . .	408	418	Italy . . .	440
Holland . .	422	470	Austria . .	419
Denmark . .	360	376	Hungary . .	404
Sweden . . .	414	408		

BIRTHS ACCORDING TO HOURS

Between	French Towns	French Rural	Belgium, Quetelet	Dresden, Mayr	Medium
Midnight and 6 a.m. .	30.3	29.4	29.6	28.5	29.5
6 a.m. and noon .	25.6	25.4	23.2	23.8	24.5
Noon and 6 p.m. . .	21.4	23.4	21.5	21.7	22.0
6 p.m. and midnight .	22.7	21.8	25.7	26.0	24.0
Total . . .	100.0	100.0	100.0	100.0	100.0

From observations made (1855-74) in various countries, it appears that 1000 maids or widows between the ages of 15 and 50 have the following number of children yearly :—

Ireland . . .	4	France . . .	18	Scotland .	24
Holland . .	10	Prussia . . .	20	Denmark .	31
Switzerland . .	11	Norway . . .	21	Saxony . .	33
Belgium . . .	17	Italy	21	Bavaria . . .	42
England . . .	17	Sweden . . .	23	Average . .	21

The ratio of illegitimate children in various countries is shown as follows from observations in 1865-78 :—

ILLEGITIMATES IN 1000 BIRTHS

Greece . . .	16	Spain	55	Norway . .	85
Ireland . . .	23	Portugal . .	56	Germany . .	87
Russia . . .	31	Italy	65	Scotland . .	93
Holland . . .	35	United States .	70	Sweden. . .	102
Switzerland .	48	Belgium . .	71	Denmark . .	111
Canada . . .	50	Hungary . .	71	Austria . . .	135
England . . .	54	France . . .	74		

The ratio of still-births in various countries is as follows :—

PER 1000 BIRTHS

France . . .	45	Holland . . .	52	Switzerland .	46
Prussia . . .	41	Belgium . .	45	Denmark . .	30
Austria . . .	22	Sweden . . .	32	Bavaria . . .	34
Italy	25	Norway . . .	35	Average . . .	37

The occurrence of still-births according to months, 1861-70, was as follows :—

	France	Norway	Sweden	Leipzig	Frankfort	Hamburg
January . . .	109	104	104	129	115	96
February . .	105	104	109	84	120	134
March . . .	102	105	103	115	88	111
April	100	103	97	109	93	103
May	99	104	91	109	104	109
June	99	102	95	84	104	76
July	97	91	93	100	102	76
August . . .	96	99	103	90	110	90
September . .	94	85	81	102	95	85
October . . .	96	102	107	87	72	90
November . .	98	99	108	100	104	136
December . .	105	102	109	100	93	94
Total . .	1,200	1,200	1,200	1,200	1,200	1,200

Still-births are more frequent in towns than in rural districts, viz. :—

	Per 1000 Births				Per 1000 Births	
	Urban	Rural			Urban	Rural
Italy . .	31	22	France		53	39
Sweden .	41	31	Belgium		50	41
Prussia .	45	40	Holland		54	51

Males are oftener still-born than females, because, as Bertillon thinks, the former have larger heads. The following table shows the number of males to females :—

Still-Born Males to 100 Females

Holland . .	127	Austria . .	131	Belgium . .	135
Prussia . .	129	Sweden . .	133	Italy . . .	141
Norway . .	121	Denmark .	125	France . .	144

Multiple births, from observations in 1851-73, average thus :—

	Twins in 10,000 Births	Triplets in a Million Births		Twins in 10,000 Births	Triplets in a Million Births
England . .	112	23	Denmark . .	142	160
Scotland . .	117	...	Belgium . .	97	100
Ireland . .	176	...	Holland . .	131	170
France . . .	108	120	Sweden . .	145	180
Prussia . . .	125	150	Norway . .	125	160
Russia . . .	121	...	Iceland . .	142	330
Austria . . .	134	180	Switzerland .	120	...
Italy . . .	118	150	Spain . . .	84	120
Bavaria . .	174	310	Wurtemburg .	128	120

In France, Italy, and Bavaria twins are most numerous in those Departments which furnish the tallest conscripts. The age of the mother has also some influence, as the tables of Lebel and Puech show :—

Mother's Age				Lebel	Puech	Medium
Under 25	.	.	.	35	17	26
25-30	.	.	.	35	41	38
30-35	.	.	.	20	30	25
Over 35	.	.	.	10	12	11
Total	.			100	100	100

According to Dubois, the mean ratio of multiple births in England, France, and Germany is 13 twins per 1000 births, and 160 triplets and 8 quadruplets per million births. Aristotle mentions a woman who had 5 children at a birth four times successively; Menage one who had 21 children in seven years. The Belgian official returns for 1851-60 give a case of 5 children at a birth, viz., 2 boys and 3 girls, and another case of 4, all boys. The Empress Catherine received a Russian peasant woman in 1757 who had 57 children, all living, having been born thus :—

16 in 4 confinements
21 in 7 ,,
20 in 10 ,,
——
57 21

This woman's husband married again, and his second wife had 15 children in 7 confinements.
A similar case is that of Fedor Vassileff, of Moscow, 1782, who had 83 children living when pensioned by the Czar. He had 69 children by his first wife at 27 births, and after her death had 18 more by his second in 8 births.

The records of Florence also show that Signora Frescobaldi, who died in 1570, had 52 children, never less than 3 at a birth. Madrid newspapers in 1883 stated that Lucas Saez returned to Spain from the United States with 37 children, 79 grandchildren, and 81 great-grandchildren, in all 107 males and 90 females, his eldest son being aged 70.
The *Daily Telegraph* of London, November 1888, published the confinement of Mrs. George Hirsch, of Dallas, Texas, of 6 children, 4 being boys and 2 girls. This surpasses all records.
Twins give 108 males to 100 females, and triplets show a medium result for France, Germany, and Austria as follows :—

Birth of three boys	.	.	.	.	26.0
Birth of three girls	.	.	.	.	22.7
Two boys and a girl	.	.	.	.	27.0
Two girls and a boy	.	.	.	.	24.3
					100.0

This gives 156 boys and 144 girls, that is, precisely the same ratio as in the case of twins.
The child-bearing age of women rarely passes 50 ; one mother in 3300 occurs after that age. If a woman has been married 18 years without children, the probabilities are 6000 to 1 against her having any. The Dublin *Evening Post* of July 16, 1801, announces that Sarah, wife of Thomas Davis, was confined the previous week of a son, her first child, after 11 years of marriage, being in her 53rd year. Men of very advanced age have begotten children. Schneider mentions a case at 86, Meade at 89, Ruttell at 92, Plater (his own grandfather) at 100. We know also that Thomas Parr was sued for adultery at 118.
There are opposing estimates as to the period of gestation :—

	Days		Days		Days
Depaul . .	268	Schwegel .	270	Rann . .	272
Wallichs .	269	Schoeder .	271	Reid . .	276

Reid's table is as follows :—

Days						Ratio
260-266 .	.	.	.	.	.	12.5
267-273 .	.	.	.	.	.	17.5
274-280 .	.	.	.	.	.	45.0
281-287 .	.	.	.	.	.	15.0
288-294 .	.	.	.	.	.	10.0
						100.0

Reid and Tourdes agree in fixing 294 days as the maximum, but French law allows 300 as the limit for legitimacy. The number of children born yearly to 1000 wives is as follows :—

France .	.	.	180	Ireland .	.	.	298
Norway .	.	.	284	England .	.	.	312
Prussia .	.	.	286	Belgium .	.	.	317
Saxony .	.	.	295	Scotland .	.	.	339

According to Bertillon and other authorities, the European averages show that 100 married women will have in their life 420 children, 100 unmarried 21 ; furthermore, that as regards prostitutes 100 will give birth in their life to 60 children. The poorer classes have more children than the rich. Bertillon's observations during ten years, 1851-60, in Norway, show as follows :—

100 rich families have 313 children
100 middle-class families have 360 children
100 poor families have 370 children

Drysdale found, in 1888, that 100 women of Montmartre, the work-people of Paris, have 175 children, while 100 women of the fashionable Champs Elysées quarter have only 86.

As regards the sexes of infants, it is observed that young couples are most likely to have boys, middle-aged ones girls. Bertillon says that observations in Denmark, Norway, and Austria give this average :—

Males Born to 100 Females

	First-Born		Subsequent Births
Lawful	110	...	105
Illegitimate . . .	104	...	106

Salder's table, published in 1830, was as follows :—

	Children to 100 Couples	Male Infants to 100 Females
Husband younger . .	487	87
Even age with wife .	617	95
Husband 4 years older	571	104
„ 8 „ „	547	127
„ 14 „ „	558	146
„ 20 „ „	455	163

UNITED KINGDOM

The surplus of births over deaths, per 1000 of the population, of late years is greater in England than in Scotland :—

	Births and Deaths per 1000 Population in England				
	1841-50	1851-60	1861-70	1871-80	40 Years
Births . .	32.6	34.1	35.3	35.5	34.4
Deaths . .	22.4	22.2	22.6	21.5	22.2
Surplus births	10.2	11.9	12.7	14.0	12.2

SCOTLAND

	1855-60	1861-70	1871-80	26 Years
Births	33.9	35.0	35.2	34.8
Deaths	20.8	22.0	21.8	21.6
Surplus births . . .	13.1	13.0	13.4	13.2

IRELAND

	1864-70	1871-80	17 Years
Births	26.3	26.2	26.2
Deaths	16.7	18.1	17.5
Surplus births .	9.6	8.1	8.7

The percentage of births, according to Quarter, compares in England with other countries thus :—

Quarter Ending	England	Scotland	France	Germany
March . . .	26.2	24.7	27.0	25.9
June	26.0	26.0	25.0	24.2
September . .	24.0	24.4	24.1	24.9
December . .	23.8	24.7	23.9	25.0
Total .	100.0	100.0	100.0	100.0

According to the *Dic. Medicale*, the forceps is less used in lying-in hospitals of London or Dublin than elsewhere, viz. :—

In	Per 10,000 Births	In	Per 10,000 Births
Dublin . . .	15	Vienna . . .	37
London . . .	18	Paris . . .	39

Illegitimacy is declining in England, as appears thus :—

Period			Per 1000 Births	Period			Per 1000 Births
1841-50 .	.	.	67	1861-70 .	.	.	61
1851-60 .	.	.	65	1871-80 .	.		51

FRANCE

The birth-rate is declining since 1801, viz. :—

Period	France	Paris	Period	France	Paris
1801 10	33.0	...	1841-50	27.3	31.4
1811-20	31.8	...	1851-60	26.1	31.5
1821-30	30.6	35.9	1861-70	26.0	30.1
1831-40	28.8	35.1	1871-80	25.6	27.4

In 1886 there were 10,425,341 families with children thus :—

Children			Number of Families	Ratio
None .	.	.	2,073,205	19.9
1 .	.	.	2,542,611	24.4
2 .	.	.	2,205,337	21.7
3 .	.	.	1,512,054	14.5
4 .	.	.	936,853	9.0
5 .	.	.	540,693	5.2
Over 5 .	.	.	554,588	5.3
			10,425,341	100.0

According to a return by the Minister of Finance, there are 148,808 families, each with seven children or more, which have claimed the exemption from certain taxes recently voted by the French Parliament. These families have 1,157,547 children, or as nearly as possible eight each.

In 1856 the ratio of married couples that had no children was much lower, only 15.5 per cent. If we compare the number of lawful births with that of marriages, we see, moreover, a constant decline since 1830, viz. :—

Period						Per Marriage
1800-30	.	.	.	.	.	3.82
1831-60	.	.	.	.	.	3.20
1861-70	.	.	.	.	.	3.09
1871-80	.	.	.	.	.	2.98

The ratio of illegitimacy has varied little in forty years, viz. :—

Period						Per 100 Births
1841-50	.	.	.	.	.	7.2
1851-60	.	.	.	.	.	7.4
1861-70	.	.	.	.	.	7.5
1871-80	.	.	.	.	.	7.3

It is a custom common in France for fathers to declare lawful their illegitimate children. The proportion thus recognised in the years 1870-74 was 25 per cent., against 21 per cent. in the fifteen years preceding. In ordinary births there are 105 males to 100 females, but in twins only 102 to 100. Births of twins average thus per 1000 :—

335 of boys
315 of girls
350 mixed
———
1000

The increase of still-births is an alarming feature, viz. :—

	Per 1000 Births					
	Male	Female	Total	Lawful	Illegitimate	Total
1841-50	39	29	34	32	66	34
1853-62	49	35	42	40	71	42
1863-70	51	38	45	41	81	45

GERMANY

The annual birth and death rates of all Germany for forty-six years ending 1886 were as follows :—

| Period | Per 1000 Inhabitants | | | Of 100 Births | |
	Births	Deaths	Surplus Births	Still-born	Illegiti-mate
1841–50 . . .	37.5	28.2	9.3	3.9	10.8
1851–60 . . .	36.8	27.8	9.0	4.0	11.4
1861–70 . . .	38.7	28.4	10.3	4.1	11.5
1871–80 . . .	40.7	28.7	12.0	4.0	8.9
1881–86 . . .	38.5	27.3	11.2	3.8	9.3

Birth-rates have been as follows :—

| Prussia | | | Saxony | | |
Period	Per 1000 Population	Per Marriage	Period	Per 1000 Population	Per Marriage
1748–90 . .	40.6	...	1831–40 . .	38.1	4.2
1816–40 . .	40.8	4.3	1841–50 . .	39.2	4.1
1841–60 . .	38.6	...	1851–60 . .	39.4	4.1
1861–70 . .	39.5	4.6	1861–70 . .	40.4	4.0
1871–80 . .	38.7	4.5	1871–80 . .	42.7	4.5
1881–85 . .	37.4	4.7	1881–85 . .	41.9	4.7
Bavaria			Wurtemburg		
1830–50 . .	30.7	4.6	1815–29 . .	36.4	5.1
1851–70 . .	35.5	4.7	1861–68 . .	40.8	5.2
1871–80 . .	40.6	4.8	1876–80 . .	42.7	5.9
1881–85 . .	38.7	5.5	1881–85 . .	37.7	5.9

In Saxony the proportion of still-births was as follows :—

Per 1000 Births

Period	Lawful	Illegitimate	Total
1801–20 . . .	53	75	57
1821–40 . . .	47	75	51
1841–60 . . .	43	71	48
1861–70 . . .	40	74	47
1871–75 . . .	44	91	52

The proportion of still-births in Prussia was thus :—

	Per 1000 Jew Births (1820–64)		Per 1000 Christian Births (1865–74)
Male . . .	22	...	44
Female . . .	19	...	36
General average .	21	...	41

The surplus of births over deaths in Prussia from 1822 to 1866 showed more favourably among Jews than in the Christian population, viz. :—

| | Among 1000 Jews | | Among 1000 Christians | |
	1822–40	1841–66	1822–40	1841–66
Births	35.5	34.7	40.0	39.5
Deaths . . .	21.4	18.9	29.6	29.1
Surplus births .	14.1	15.8	10.4	10.4

In sixty years ending 1875 the average number of births yearly was :—

To 1000 married women	. . .	285
To 1000 unmarried women	. . .	25

In a period of forty-six years ending 1886 the proportion of illegitimate births was as follows :—

In 1000 Jewish births	.	.	.	24
In 1000 Roman Catholic births	.	.	58
In 1000 Protestant births .	.	.	85

The proportion was 98 per 1000 in town births, and 72 in rural. The average during fifty-eight years in the large cities was as follows :—

	Per 1000			Per 1000
Cologne .	.	105	Breslau . .	. 180
Berlin .	.	157	Königsberg .	. 189

The illegitimate ratios in Bavaria and Saxony were :—

| Bavaria | | Saxony | |
Period	Per 1000 Births	Period	Per 1000 Births
1850–59	240	1821–40	128
1862–70	210	1841–50	151
1871–78	130	1861–75	143

Twins appear to be increasing in Prussia, viz. :—

1821–57 .	.	.	.	115 in 10,000 births
1858–74 .	.	.	.	126 „ „

In Saxony the proportion in 1834–49 was 127 in 10,000. Sexes of twins in Prussia were : 327 of boys, 303 of girls, and 370 mixed, in 1000 cases, being as 105 boys to 100 girls.

HOLLAND

Birth-rate from 1840 showed as follows :—

Period	Per 1000 Inhab.		Per Marriage
1841–60 .	.	. 34.9	... 4.6
1861–80 .	.	. 36.3	... 4.5
1881–85 .	.	. 34.8	... 4.8

SWEDEN

The birth-rate from 1751 was as follows :—

Period	Per 1000 Pop.		Per Marriage
1751–70 .	.	. 35.2	... 4.0
1771–90 .	.	. 32.5	... 4.0
1791–1810 .	.	. 32.1	... 3.8
1811–30 .	.	. 34.1	... 4.0
1831–50 .	.	. 31.4	... 4.3
1851–70 .	.	. 32.4	... 4.6
1871–80 .	.	. 30.8	... 4.5
1881–85 .	.	. 29.4	... 4.6

The number of births yearly to 1000 women of 15 to 50 years of age was as follows :—

1776–1820 .	.	. 122	1841–60	.	.	. 127
1821–40 .	.	. 130	1861–75	.	.	. 123

In 1875 of 10,000 births the ages of the mothers were :—

Age	Rural	City	Total
Under 18 . . .	21	25	22
18–20	115	185	125
21–25	1,378	1,555	1,404
26–35	4,988	5,326	5,041
36–45	3,315	2,818	3,238
46–50	180	88	167
Over 50 . . .	3	3	3
Total . .	10,000	10,000	10,000

The records of 100 years down to 1885 showed the average ages of every 10,000 women confined to be thus :—

Under 20 .	.	.	.	.	.	194
20–30 .	.	.	.	.	.	4,059
31–40 .	.	.	.	.	.	4,593
41–45 .	.	.	.	.	.	988
46 and upwards .	.	.	.	.	166
Total	.	.	10,000			

The number of children born yearly to 1000 women at various ages, married and unmarried, is as follows :—

Age	Per 1000		
	Wives	Unmarried	All Women
16-20	477	3	9
20-25	464	30	106
25-35	342	46	220
35-40	251	32	203
40-45	142	14	121
45-50	22	1	18

From observations during the years 1871–75 it appears that the mothers of every 1000 children born were as follows :—

Mothers	Urban	Rural	All Sweden
Wives	773	908	890
Spinsters . . .	218	85	104
Widows . . .	9	7	6
All births . .	1,000	1,000	1,000

Birth-rate was higher in the towns, with reference to population, than in rural districts, viz. :—

Period	Per 1000 of Population		
	Towns	Rural	All Sweden
1861–70	33.2	31.2	31.5
1871–75	31.9	30.5	30.7

In the same periods 1000 married women produced the following number of children :—

Period	Town	Rural	All Sweden
1861–70	197	172	174
1871–75	184	168	170

The ratio of women who had midwives in their confinement was as follows, per cent. :—

Period	Town	Rural	All Sweden
1861–70	93	37	45
1871–75	92	43	50

The number of boys born to 1000 girls was as follows :—

Period	Town	Rural	All Sweden
1861–70	1,046	1,052	1,050
1871–75	1,042	1,055	1,052

Bertillon found that the clergy had 108 boys, the nobles only 98 to 100 girls ; the common people 105. The ratio of births to 100 deaths was as follows :—

Period	Town	Rural	All Sweden
1861–70	126	162	157
1871–75	124	178	168

Illegitimate births have increased very rapidly :—

Period	Per 1000 Births	Period	Per 1000 Births
1771–90	41	1841–60	97
1791–1815	59	1861–70	105
1816–40	72	1871–75	115

In the last period the ratio was 90 per 1000 in the rural districts and 220 in the towns. Still-births were as follows :—

Period	Per 1000 Births	Period	Per 1000 Births
1816–40	27	1861–70	33
1841–60	32	1871–75	32

Still-births occur more frequently in town than in country :—

Period	Per 1000 Births		
	Urban	Rural	All Sweden
1861–70 . . .	40	32	33
1871–75 . . .	39	31	32

Twins and triplets occurred as follows :—

Period	Twins per 10,000 Births	Triplets per Million Births	Period	Twins per 10,000 Births	Triplets per Million Births
1776–95 . .	174	310	1831–50 .	140	200
1796–1810 .	165	260	1851–70 .	141	195
1811–30 . .	155	250	1871–75 .	146	160

In the years 1871–75 the rate for twins was 150 in towns and 144 in rural districts among 10,000 births.

NORWAY

Birth-rate from the beginning of the century was thus :—

Period	Per 1000 Inhab.	Per Marriage	Period	Per 1000 Inhab.	Per Marriage
1801–25	30.6	3.7	1861–70	30.8	4.7
1826–45	31.3	4.2	1871–80	30.8	4.3
1846–60	32.4	4.2	1881–85	31.1	4.7

The number of children born yearly to 1000 women between 20 and 45 years of age was as follows :—

Period	Per 1000 Wives	Per 1000 Unmarried
1836–45	286	25
1846–55	305	32
1856–65	311	32
1866–70	284	32

Wives and unmarried women had more children in town than in the country, the returns for ten years down to 1870 showing that 1000 women between the ages of 15 and 45 gave birth as follows :—

	Per 1000	
	Wives	Unmarried
Town	311	33
Rural	301	20
All Norway	303	21

The ratio of illegitimates in the same period was 80 per 1000 births rural, 95 for urban, and 83 per 1000 for all Norway. Still-births were 38 per 1000, against 42 in the decade ending 1860. Twins occurred as follows :—

Period	Per 10,000 Births		
	Urban	Rural	All Norway
1851–60	109	124	121
1861–70	117	120	119

The average of triplets in the above twenty years was 160 per million births. The number of boys born to 100 girls was as follows :—

	Urban	Rural	All Norway
Lawful	1,040	1,058	1,053
Illegitimate . . .	1,090	1,070	1,060
Total . .	1,045	1,060	1,055

The preponderance of males varies with the length of time the parents may be married, thus :—

Married under 7 years . . 116 boys to 100 girls.
,,   7–12   ,,   . . 107 ,,   ,,
,,   over 12 ,,   . . 94 ,,   ,,

The sex of the first-born likewise varies thus :—

Both parents under 25 . . 208 boys to 100 girls.
Father over 35 . . . . . 92 ,,   ,,
Both parents over 35 . . . 87 ,,   ,,

FINLAND

Birth-rate for fifteen years ending 1865 averaged 36.2, against 34.3 in the twenty years preceding ; still-births, 29 in 1000 births ; twins, 149 in 10,000 ; illegitimate, 72 per 1000.

ITALY

In the period from 1862 to 1885 the birth-rate showed :—

	Per 1000 Inhabitants		Per Marriage
1862–70	37.5	...	5.0
1871–80	36.9	...	4.9
1881–85	38.0	...	4.7

The ratio of still-births was found in 1872–74 to vary from 15 to 41 per 1000 in various parts of the kingdom, viz. :—

| Sicily . . . | 15 | Rome . . . | 41 | Piedmont . . | 34 |
| Naples . . | 18 | Lombardy . | 38 | Tuscany . . | 35 |

The ratio for the whole kingdom was only 29 per 1000. From a census taken in Turin it was found that of 1000 children born in a given year, the ratios were as follows :—

1st born	.	.	.	231	5th born	.	.	.	88
2nd ,,	.	.	.	188	6th ,,	.	.	.	67
3rd ,,	.	.	.	152	7th ,,	.	.	.	50
4th ,,	.	.	.	118	8th, &c. born	.	.	.	106

RUSSIA

The birth-rate has been as follows per 1000 population :—

Years		Years		Years	
1801–20 . .	39.6	1846–58 . .	45.5	1876–80 . .	48.4
1826–45 . .	44.6	1801–65 . .	50.7	1881–83 . .	48.7

From 1861 to 1883 the number of births averaged 520 to 100 marriages. The sexes of children born were :—

1801 to 1830 . . . 110 males to 100 females
1831 to 1860 . . . 105 ,,   100   ,,

At St. Petersburg 1000 births occurred as follows :—

Quarter Ending
March 31st 256
June 30th 260
September 30th 247
December 31st 237

Total 1000

AUSTRIA-HUNGARY

Birth-rates in Austria and Hungary were as follows :—

Period	Austria		Hungary	
	Per 1000 Inhabitants	Per Marriage	Per 1000 Inhabitants	Per Marriage
1830–47	39.7	...	...	...
1853–60	40.6	4.9	...	...
1861–70	38.2	4.4	42.2	4.6
1871–80	39.7	4.6	43.0	4.5
1881–85	38.0	4.8	45.2	4.0

Illegitimacy has a high ratio in the cities, viz. :—

Vienna . . . . . 402 per 1000
Prague . . . . . 470 ,,

In Prague in 1880 it was found that 1000 married women gave birth to 155 children yearly, and 1000 unmarried to 75. The birth-rate of Prague per 1000 inhabitants is 44, that of Vienna 42. Still-births in Vienna are 43 in 1000. The ratio of sexes in Vienna shows that 106 boys are born for 100 girls.

Returns for Austria proper during ten years to 1886 gave the following ratios of births :—

Male . . . 515	Legitimate . 856	Live-born . . 973
Female . . 485	Illegitimate . 144	Still-born . . 27
Total . 1000	1000	1000

Returns for Hungary for six years ending 1886 give the following average :—

	Live-Born	Illegitimate		Still-Births
Males .	295,200	26,300	Lawful . .	9,510
Females	281,700	25,200	Illegitimate	1,620
Total	576,900	51,000	Total .	11,130

This gives a ratio of nearly 9 per cent. for illegitimates ; still-births 19 per 1000. The proportion of still-born among bastards was very high, 32 per 1000. In the said interval of six years there were in Hungary the following multiple births :—

	Number of Births	Male	Female	Total
Twins	8,485	8,620	8,350	16,970
Triplets	104	150	162	312
Quadruplets . . .	2	3	5	8

BELGIUM

The annual average of births was as follows :—

Period	Births	Excess over Deaths	Birth-rate per 1000 Population	Births to 100 Marriages
1831–40	140,000	32,000	33.4	4.57
1841–50	130,000	26,000	30.3	4.50
1851–60	137,000	35,000	30.0	4.08
1861–70	155,000	40,000	31.6	4.26
1871–80	172,000	52,000	32.1	4.42
1881–87	175,000	57,000	30.7	4.43

The above being the total number of births, legitimate and illegitimate, it follows that the number of children

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born to each marriage was really less than shown above.
The official tables show as follows :—

Period	Males Born to 100 Female Births	Births to 100 Deaths	Births to 100 Women of 15 to 45 Years of Age
1841–50	105.3	125	13.4
1851–60	105.2	134	13.1
1861–70	105.2	136	14.4
1871–80	104.7	143	14.5
1887	105.0	152	13.7

The following is an official table of ratios :—

Period	Percentage of Illegitimate Births	Illegitimate Births to 100 Single Women (15–45)	Male Births to 100 Female		Still-births, Percentage
			Legitimate	Illegitimate	
1841–50	7.4	1.62	105.5	102.5	4.37
1851–60	7.9	1.67	105.4	102.5	4.73
1861–70	7.1	1.76	105.4	103.0	4.81
1871–80	7.2	1.84	104.9	102.4	4.54
1887	8.8	2.14	105.3	100.9	4.97

In Brussels the ratio of illegitimacy rises to 285 per
1000 births.

DENMARK

Since 1840 the birth-rate has been as follows :—

Period	Per 1000 Population	Per Marriage
1840–60 . . .	32.8	4.0
1861–70 . . .	31.0	4.1
1871–80 . . .	31.5	4.0
1881–85 . . .	32.5	4.2

The number of male children born to 100 females
shows thus :—

Mother's Age						Male Births
Under 30	.	.	.	.	.	108
30 to 35 .	.	.	.	.	.	107
Over 35 .	.	.	.	.	.	106

The ages of 1000 women in their confinement in the
years 1861–70 were :—

Under 20	.	.	.	.	.	14
20 to 30 .	.	.	.	.	.	414
30 to 40 .	.	.	.	.	.	461
Over 40 .	.	.	.	.	.	111
						1000

GREECE

During ten years ending 1878 the birth-rate averaged
120 per 1000 women between 15 and 50 years, and 27.6
per 1000 of the general population. The number of law-
ful births per 1000 married women was 178 yearly.

SWITZERLAND

Birth-rate during twenty years showed as follows :—

Period	Per 1000 Population	Per Marriage
1867–74 . .	29.8	...
1876–80	32.2	4.3
1881–85 . .	28.2	4.0
1886 . . .	27.4	4.0

The ratio of illegitimacy is high at Geneva, especially
among the foreign population, viz. :—

Period	Swiss	Foreign
1847–56 . . .	6.8	11.4
1857–66 . . .	5.8	14.8
1867–76 . . .	6.7	18.1

Illegitimacy in 100 Births

ALGERIA

The birth-rate among various classes of the population
showed :—

Race	1853–56	1873–76
French . . .	41.0	38.0
Spanish . . .	47.5	39.5
Italian . . .	38.5	39.0
Maltese . . .	44.0	38.4
Germans . . .	31.0	28.8
Jews . . .	56.5	49.0

The number of children to 100 marriages, and the ratio
of twins were as follows :—

Race	Children per 100 Marriages	Twins in 10,000 Births
French . . .	370	102
German . . .	480	160
Italian . . .	570	120
Spanish . . .	630	40

The average of children to marriages and the ratio of
male births have been as follows :—

Period	Children to 100 Marriages	Boys to 100 Girls
1836–53 . . .	390	117
1854–77 . . .	440	107

AUSTRALIA

The annual birth and death rates of the seven colonies
during thirteen years down to 1888 were as follows :—

	Per 1000 Population			Percentage of Illegitimates
	Births	Deaths	Surplus Births	
N. S. Wales . .	37.8	15.5	22.3	4.4
Victoria . . .	31.6	15.1	16.5	4.5
Queensland .	36.9	17.3	19.6	4.0
South Australia .	36.9	14.1	22.8	2.2
New Zealand . .	37.2	11.1	26.1	2.7
Tasmania . . .	33.1	15.8	17.3	4.2
W. Australia . .	34.7	16.3	18.4	4.2
All Australia . .	35.5	15.0	20.5	4.3

ARGENTINA

The birth-rate of Buenos Ayres is 31 per 1000 of popu-
lation. Of 1000 children born the parents were :—

Argentines	.	.	.	.	.	168
Italians .	.	.	.	.	.	434
Various .	.	.	.	.	.	398
						1000

There were 35 still-births in 1000 births.

BOTANY

The growth of various trees and products stops at the following heights above sea-level :—

	Feet		Feet		Feet
Vine . . .	2,300	Oak . . .	3,350	Pine . . .	6,200
Maize . .	2,800	Walnut . .	3,600	Fir . . .	6,700

The number of leguminous plants in various parts of the world is as follows :—

Europe . .	184	S. America .	605	Levant . .	250
Mediterranean	468	Australia . .	229	N. Africa . .	108
United States	183	China . . .	77	Central Africa	130
Mexico . .	152	East Indies .	452	S. Africa . .	395
West Indies .	221	Siberia . .	129	Islands . .	42

The number of seeds in a bushel is 556,000 of wheat, 888,000 of rye, 16,400,000 of clover.

The quantity of seed to the acre is usually, in bushels, thus :—

Wheat . . .	1.6	Rye . . .	1.5	Hemp . . .	1.2
Barley . . .	2.0	Rice . . .	2.0	Flax . . .	0.5
Oats . . .	3.0	Beans . . .	1.5	Potatoes . .	8.0

Batata.—Better known as the sweet potato, gives a crop of 5 tons per acre.

Carob.—Also called algarroba or locust tree; it flourishes in Cyprus, where there are 600,000 trees, covering 20,000 acres. The yield of beans varies from 10 to 100 lbs. Average crop 25,000 tons, value £75,000, the bulk being exported to Scotland to make whiskey. The bean has 66 per cent. sugar and gum.

Castor-oil Plant.—Flourishes in Algeria ; average crop 10 cwts. per acre, which gives from 50 to 60 gallons oil, worth 10s. per gallon.

Mulberry.—An ordinary tree produces from 50 to 200 lbs. of leaves yearly, according to age, viz. :—

Age, Years	Lbs., Leaves	Age, Years	Lbs., Leaves
4	25	12	148
9	105	21	218

At the age of 45 the production begins to decline, and the tree dies at 70. Lombardy has 10 millions of these trees, and all Italy probably 40 millions ; France has 6 millions. It is found that 10 lbs. of leaves suffice to yield one ounce of raw silk.

BRIDGES AND VIADUCTS

One of the most remarkable bridges of the Middle Ages is that built over the Adda in Italy in 1377, which is of stone, and has a single span of 237 feet. Among those of historical interest may be mentioned :—

Name	Length (Feet)	Date	Over
Ratisbon . . .	994	1135	Danube
St. Esprit . . .	2,690	1285	Rhone
Cordoba . . .	460	1301	Guadalquivir
Verona . . .	365	1354	Po
Rialto . . .	99	1588	At Venice
Prague . . .	1,706	1650	Moldau
Schaffhausen .	364	1758	Rhine
Neuilly . . .	740	1768	Seine

Those of the greatest height appear to be the following :—

	Height (Feet)	Span (Feet)
Brooklyn	210	1,620
Annecy	656	636
Clifton	257	703
Forth	...	5,330

Brooklyn bridge has four cables, each of 5000 wires of ⅛ inch. Forth is by far the greatest ever constructed (see *Engineering*) ; the heaviest train deflection is 4 inches. The first iron bridge in the United Kingdom was at Coalbrookdale in 1779 ; the following table shows the most notable in all parts of the world since then :—

Date	Bridge	Over	Length (Feet)	Iron (Tons)	Cost	Builder
					£	
1779	Coalbrookdale .	Severn . .	100	378	...	Darby
1796	Sunderland . .	Wear . . .	236	260	27,000	Wilson
1819	Southwark . .	Thames . .	800	5,780	800,000	Rennie
1825	Menai . . .	Menai Straits .	1,050	2,187	212,000	Telford
1849	Newcastle . .	Tyne . . .	900	5,050	243,000	Stephenson
1850	Britannia . .	Menai Straits .	1,511	9,600	602,000	Stephenson
1855	Niagara . .	Niagara . .	850	400	83,000	Roebling
1859	Victoria . .	St. Lawrence .	7,200	8,230	1,700,000	Stephenson
1860	Pesth-Buda .	Danube . .	1,900	7,000	...	...
1862	Freyburg . .	Sarine . .	1,095	3,100	100,000	...
1867	Cincinnati . .	Ohio . . .	2,252	...	...	Roebling
1868	Clifton . .	Niagara . .	1,270	...	40,000	...
1874	St. Louis . .	Mississippi . .	2,200	4,200	400,000	Eads
1875	Wuzerabad . .	Punjaub . .	9,300	...	650,000	...
1877	Oporto . .	Douro . .	1,160	...	...	Eiffel
1878	Annan . .	Solway . .	5,120	1,600	...	...
1879	Empress . .	Sutlej . .	6,000	6,650	550,000	...
1880	Moerdyk . .	Maas . .	4,850	...	...	...
1880	Pultowa . .	Dnieper . .	3,550	...	...	...
1881	Saratov . .	Volga . . .	4,872	5,150	695,000	Beleloubski
1882	Benares . .	Ganges . .	3,000	...	425,000	...
1883	Brooklyn . .	Hudson . .	4,500	30,000	3,100,000	Roebling
1889	Forth . .	Forth . .	5,330	48,000	2,550,000	Fowler

The Chinese had suspension bridges of iron chains during many centuries. Ogilvy saw one over the Yunnan in 1669, erected by the Emperor Ming, who was contemporary with Tiberius Cæsar.

In 1816 Captain Brown built an iron bridge of 112 feet, only for foot-passengers, at Galashiels, for the sum of £40, the cheapest bridge on record.

The quickest bridge ever built was by Mr. Dredge, in 1846, who in eight days placed an iron bridge, 74 feet span, across the Blackwater, co. Tyrone, Ireland. The greatest number of bridges built by one man was by Mr. Telford, surnamed Pontifex, who erected 1200 bridges in Scotland, between the years 1800 and 1820.

London has spent 5½ millions sterling on bridges since 1816, viz. :—

Name	Length, Feet	Cost	Per Foot	Date
		£	£	
London . . .	900	2,000,000	2,200	1831
Southwark . .	800	800,000	1,000	1819
Waterloo . . .	1,326	1,060,000	800	1817
Blackfriars . .	1,000	270,000	270	1869
Charing Cross .	1,365	180,000	130	...
Westminster. .	1,220	480,000	390	1862
Vauxhall . . .	806	412,000	500	1816
Hammersmith .	480	80,000	170	1827
Total .	7,897	5,412,000	680	...

The French Government in 56 years spent 76 millions sterling on bridges, thus :—

Years	Cost	Per Annum
	£	£
1814–30 . . .	13,500,000	800,000
1831–47 . . .	22,500,000	1,330,000
1848–70 . . .	40,200,000	1,800,000
56 years . . .	76,200,000	1,350,000

The most remarkable viaducts hitherto made are the following :—

	Length, Feet	No. of Arches	Span, Feet	Height, Feet	Width, Feet	Cost, Pence per Cubic Yd.
Weaver . .	1,484	20	60	84	30	92
Stockport .	1,792	26	63	90	32	91
Dane . . .	1,717	23	63	88	31	75
Rugby . . .	720	13	50	51	30	88
Tamworth .	710	20	30	45	...	99
Llangollen .	1,800	19	85	150	...	90
Wharncliffe .	895	11	70	83	35	144
Trent . . .	1,286	56	20	33	29	86
Kinzua (N.Y.)	2,050	20	60	301	...	...
Cantal (Fr.) .	1,880	...	...	413	...	...

The Kinzua, built by Mr. Barnes, consists of 2000 tons iron and 7000 tons masonry, supported by twenty iron piers, and costing altogether £62,000. The Cantal, by M. Eiffel, is the highest in the world, being nearly the same height as the top of the great Pyramid.

BURIALS

The minimum time between death and burial was among the Egyptians 4 days, Romans 6, and Greeks 11 days. At present it is 48 hours in England, Germany, and Austria, 36 in Holland, 24 in France.

The cemeteries in England and France in 1882 were :—

	No.	Per 100,000 Inhabitants
England . . .	11,304	45
Wales	958	71
France	38,041	101

London has 22 cemeteries, with an aggregate of 2210 acres, that is, an acre for 1700 inhabitants. Besides those above stated for England and Wales, there are 1411 cemeteries that have been closed by Order of Council.

The practice of cremation has been recently introduced. A body weighing 140 lbs. produces 3 lbs. ashes ; time for burning, 55 minutes.

Mr. Chadwick estimates the cost of funerals in England thus :—

Paupers . . .	13s.	Gentry . . .	£100
Working-class . .	£5	Nobility . .	£1000
Middle-class . .	£40		

Average—£10 for each interment, or 5 millions per annum.

The French official classification was as follows :—

Funerals of	Annual Percentage	
	1872–74	1878–79
Rich persons . . .	3.2	3.5
Middle-class . . .	13.6	14.3
Working-class . . .	83.2	82.2
Total . . .	100.0	100.0

BUTTER

The various kinds of butter give the following analyses :—

	Fat	Water	Various	Total	Ratio of Caseine
Devonshire . .	82.7	16.2	1.1	100.0	16.2
Norman . . .	82.4	12.6	5.0	100.0	10.6
London . . .	47.1	42.4	10.5	100.0	7.8
„	67.5	24.0	8.5	100.0	6.9
Isle of Wight .	86.3	3.8	9.9	100.0	3.3
Jersey . . .	78.5	10.4	11.1	100.0	2.5
Oleomargarine .	86.0	10.0	4.0	100.0	0.6

An English cow giving 1800 quarts milk per annum produces 140 lbs. butter, consuming 4 tons hay, which contain 168 lbs. fat.

The price of butter in London since 1730 has been :—

	Pence			Pence
1730–1790 . . .	5¾	1841–1860 . .	12¼
1791–1815 . . .	13	1861–1880 . .	16
1816–1840 . . .	9½	1881–1883 . .	18

See *Dairy*.

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CABS

There are 11,000 in London, and 6000 in Paris ; the former average 80,000, the latter 50,000 passengers daily. The medium fare earned per passenger is 15 pence in Paris, 18 pence in London. The earnings in London per cab are 19 shillings a day in "the season," 9 the rest of the year, or 12 shillings all the year round. In 1888 the Société Générale of Paris averaged 16½ francs receipts and 14 francs expenditure daily per cab, being a net profit of 2½ francs or 2 shillings ; the expenses included 2 francs a day in taxes per cab. The average earnings of this Company all the year round were 15 pence a day per cab over the average earnings in London. The cost of food per horse in Paris in 1888 was 13½ pence, against 18 pence in 1881 daily. The ratio of horses dead or disabled during the year in the Société Générale stables was :—

1858–60 .	.	.	.	20 per cent.	
1867–69 .	.	.	.	18	„
1878–88 .	.	.	.	14	„

A statement published in 1844 showed that Paris had then 3100 cabs, earning on an average 14 francs (say 11 shillings) each daily, and 340 omnibuses, averaging £0 francs (48 shillings) daily.

Cabs kill or disable many thousands of persons yearly in the United Kingdom.

Of all males who die in England, one in 260 is killed by a cab or other vehicle, and of all females one in 2550. The ratio of these deaths to the general mortality is as follows :—

	Per 10,000 Deaths		Per 10,000 Deaths
Birmingham . . .	12	Manchester . . .	24
Sheffield	17	Dublin	33
Glasgow	19	London	37
Liverpool	21	Leeds	79

The value of articles left in cabs in London, and handed over to the police at Scotland Yard, averages £21,000 per annum.

CALENDAR

1. Jewish, 383 days; the Jewish year 5650 began on September 26, 1889.

2. Julius Cæsar's, 365 days, B.C. 46, commenced in March.

3. Mahometan, 355 days, A.D. 622; the Mahometan year 1300 began March 1, 1883.

4. Charles IX., A.D. 1564, commenced 1st January.

5. Pope Gregory XIII., A.D. 1582; now used, except in Russia.

6. The Russian year begins on January 13 of our calendar. The Gregorian calendar was adopted in England in 1752, before which date the year began on March 25, which would now be April 5.

For the purpose of finding the day of the week of any event, the student will be facilitated by knowing the day on which the year began. The following table shows since 1601 the day of the week on which the 1st of January fell :—

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
...	...	...	...	1601	1602	1603
1604	...	1605	1606	1607	1608	...
1609	1610	1611	1612	...	1613	1614
1615	1616	...	1617	1618	1619	1620
...	1621	1622	1623	1624	...	1625
1626	1627	1628	...	1629	1630	1631
1632	...	1633	1634	1635	1636	...
1637	1638	1639	1640	...	1641	1642
1643	1644	...	1645	1646	1647	1648
...	1649	1650	1651	1652	...	1653
1654	1655	1656	...	1657	1658	1659
1660	...	1661	1662	1663	1664	...
1665	1666	1667	1668	...	1669	1670
1671	1672	...	1673	1674	1675	1676
...	1677	1678	1679	1680	...	1681
1682	1683	1684	...	1685	1686	1687
1688	...	1689	1690	1691	1692	...
1693	1694	1695	1696	...	1697	1698
1699	1700	...	1701	1702	1703	1704
...	1705	1706	1707	1708	...	1709
1710	1711	1712	...	1713	1714	1715
1716	...	1717	1718	1719	1720	...
1721	1722	1723	1724	...	1725	1726
1727	1728	...	1729	1730	1731	1732
...	1733	1734	1735	1736	...	1737
1738	1739	1740	...	1741	1742	1743
1744	...	1745	1746	1747	1748	...
1749	1750	1751	1752	...	...	...

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
...	1753*	1754	1755	1756	...	1757
1758	1759	1760	...	1761	1762	1763
1764	...	1765	1766	1767	1768	...
1769	1770	1771	1772	...	1773	1774
1775	1776	...	1777	1778	1779	1780
...	1781	1782	1783	1784	...	1785
1786	1787	1788	...	1789	1790	1791
1792	...	1793	1794	1795	1796	...
1797	1798	1799	1800	1801	1802	1803
1804	...	1805	1806	1807	1808	...
1809	1810	1811	1812	...	1813	1814
1815	1816	...	1817	1818	1819	1820
...	1821	1822	1823	1824	...	1825
1826	1827	1828	...	1829	1830	1831
1832	...	1833	1834	1835	1836	...
1837	1838	1839	1840	...	1841	1842
1843	1844	...	1845	1846	1847	1848
...	1849	1850	1851	1852	...	1853
1854	1855	1856	...	1857	1858	1859
1860	...	1861	1862	1863	1864	...
1865	1866	1867	1868	...	1869	1870
1871	1872	...	1873	1874	1875	1876
...	1877	1878	1879	1880	...	1881
1882	1883	1884	...	1885	1886	1887
1888	...	1889	1890	1891	1892	...
1893	1894	1895	1896	...	1897	1898

In connection with the preceding calendar, it will be easy by means of the following table to find the day of the week of any event :—

January	.	.	1	8	15	22	29
February	.	.	5	12	19	26	...
March .	.	.	5	12	19	26	...
April .	.	.	2	9	16	23	30
May .	.	.	7	14	21	28	...
June .	.	.	4	11	18	25	...
July .	.	.	2	9	16	23	30
August .	.	.	6	13	20	27	...
September	.	.	3	10	17	24	...
October .	.	.	1	8	15	22	29
November	.	.	5	12	19	26	...
December	.	.	3	10	17	24	31

Allowance must be made for February 29 in leap-years, which were those preceding the blank spaces in the previous calendar.

CANALS

The most remarkable canals are :—

Date	Name	Miles	Cost £	Per Mile £	Country
1668	Languedoc	160	680,000	4,250	France
1776	Bridgewater	38	360,000	9,050	England
1785	Eyder . .	26	510,000	19,500	Denmark
1822	Caledonian	60	1,140,000	19,000	Scotland
1825	Helder . .	60	900,000	15,000	Holland
1825	Erie . . .	363	1,820,000	5,000	U. States
1830	Cincinnati .	306	610,000	2,000	,,
...	Rideau . .	132	800,000	6,060	Canada
...	Welland .	41	1,400,000	34,150	,,
1832	Burgundy .	158	2,220,000	14,050	France
1854	Bengal . .	900	2,000,000	2,200	India
1869	Suez . .	92	17,030,000	185,000	Egypt
1874	North Sea .	14	2,030,000	145,000	Holland

* First year of new style, which began September 2, 1752.

The following table shows the mileage of canals and navigable rivers :—

	Miles		
	Canals	Rivers	Total
United Kingdom . . .	2,794	1,020	3,814
France	2,910	4,820	7,730
Germany	1,320	15,760	17,080
Russia	870	33,046	33,916
Austria	1,710	5,490	7,200
Italy	664	626	1,290
Spain and Portugal . .	270	1,285	1,555
Belgium	535	540	1,075
Holland	1,830	870	2,700
Scandinavia	390	300	690
Europe	13,293	63,757	77,050
United States	4,479	47,355	51,834
Canada	535	2,820	3,355
Brazil	...	22,200	22,200
Argentina	...	2,200	2,200
India	2,240	2,600	4,840
China	5,270	3,800	9,070
Total . .	25,817	144,732	170,549

The average cost of making canals has been £9600 in the United Kingdom, £7000 in France, £9800 in the United States, and £15,500 in Canada, per mile.

Among those projected or in construction are the following :—

Locality	Miles	Estimated Cost	Per Mile
		£	£
Panama	46	26,500,000	576,000
Alexandria and Suez . .	150	...	...
Manchester and Liverpool	44	5,200,000	120,000
Malacca	66	4,000,000	60,000
Bordeaux and Narbonne .	255	22,000,000	87,000
Corinth	4	1,200,000	300,000
Dniester and Vistula . .	460	21,000,000	45,000
Black Sea and Caspian .	310	4,000,000	13,000

The Panama Canal was begun in September 1884, the plans showing excavations of 160 million cubic yards ; this included a tunnel of 4 miles or 7000 yards, 100 feet wide and 160 in height, to cost £800 per lineal yard. The whole was to be finished in 1892, at an estimated cost of 26½ millions sterling. In December 1885, Baron Lesseps had at work 10,000 men, 169 locomotives, 12,000 waggons and 7 dredges. Each of the dredges was capable of excavating 100,000 cubic yards monthly. In March 1888, after 42 months of work, the total excavations reached only 53 million cubic yards, or one-third of the total, and had cost 40 millions sterling—say 15 shillings per cubic yard, or five times the estimates. The work remaining to be excavated was 36 million tons of stone and 54 million of clay, in all 82 million cubic yards. The works were suspended in January 1889, the company having expended 60 millions sterling, but this was the nominal amount of stock. It is thought the actual works cost less than 40 millions. Death-rate among the men varied from 3 to 10 per cent. yearly.

The Suez Canal is the most remarkable and useful engineering work of ancient or modern times. It shortens the voyage between England and the East by one-third ; that is, it enables two vessels to do the same work that would require three by the Cape of Good Hope, the distance in nautical miles being as follows :—

London to	By Canal	By Cape	Saving Miles
Bombay . . .	6,330	10,595	4,265
Madras . . .	7,330	10,830	3,500
Calcutta . . .	7,950	11,450	3,500
Singapore . . .	8,345	11,670	3,325

It was begun by Lesseps in 1856, and completed in 1869 at a cost of £17,000,000 sterling, viz. :—

	£
Preliminary expenses	3,800,000
Machinery	2,200,000
Excavation	7,700,000
Docks and harbours	1,400,000
Transport, buildings, &c. . .	1,936,000
Total . . .	17,036,000

Length, 92 miles ; depth, 26 feet. Tolls average £800 per vessel, or 8 shillings per ton of net tonnage. Tugs are provided for sailing vessels at a charge of £200. The saving to commerce by reason of the canal is above five millions sterling per annum, that is, 2½ millions after payment of the fees. The flags of vessels passing through since 1870 have been 77 per cent. British, 8 French, 4 Dutch, and 11 per cent. of other nations.

The traffic returns show as follows :—

Year	Ships	Tons	Average Tonnage	Fees, £
1870	486	436,000	900	206,000
1875	1,494	2,940,000	1,960	1,156,000
1880	2,026	4,345,000	2,150	1,630,000
1885	3,100	8,180,000	2,640	2,260,000
1889	3,425	9,606,000	2,800	2,640,000

The above is the gross tonnage, the net being 70 per cent. of same, the tonnage ratio of the various flags in late years showed thus :—

	1886	1889
British	76.4	77.9
French	8.5	5.7
Italian	2.3	2.9
German	3.9	4.8
Dutch	3.8	3.8
Various	5.1	4.9
Total . .	100.0	100.0

Electric light is now used for passage by night. The mean duration of passage was 48 hours in 1883, and only 27 hours in 1889. Expenses in 1889 were £1,300,000, leaving a profit of £1,340,000.

The ordinary share capital of the company is only 8 millions sterling, and the dividend ranges from 15 per cent. per annum upwards. The sum due on debentures is £8,867,000. The nominal capital called up for making the canal and the exact sum realised are shown thus :—

Year	Issue	At	Realised
	£		£
1860	9,360,000	100	9,360,000
1868	6,667,000	60	4,000,000
1871	600,000	80	480,000
1880	240,000	67	160,000
Total . .	16,867,000	83	14,000,000

It appears, therefore, that the real cost was only 14 millions sterling, or £150,000 per mile. The British Government owns nearly half the ordinary share capital, having bought 176,602 shares, nominal value £3,530,000,

from the Khedive in 1876, at a premium of 12½ per cent., the price paid being £3,976,600. The coupons had been cut off till 1892, but the Khedive pays interest until then. The proportions of Eastern and Southern trade passing to and from Great Britain through the Suez Canal appear as follows :—

British Trade with	By Canal	By Cape	Total
	£	£	£
Australia . . .	12,000,000	43,000,000	65,000,000
China and Japan	23,000,000	2,000,000	25,000,000
India, &c. . . .	69,000,000	15,000,000	84,000,000
Total . .	104,000,000	60,000,000	164,000,000

The value of what passes through the canal is equal to one-seventh of the total foreign commerce of Great Britain.

Comparing the traffic on canals in the various parts of the world, we find the average of tons per mile as follows :—

Germany . 6,000	England . 8,800	U. States 10,000
France . . 8,000	Russia . . 9,000	Suez . . 102,000

UNITED KINGDOM

It is stated by Haydn that the first canal in England was made by Henry I. to connect the Trent with the Witham in the year 1134. The first, however, of any note was that made by the Duke of Bridgewater, James Brindley being engineer ; it was begun in 1759, completed in 1776 between Manchester and Liverpool at a cost of £360,000, length 38 miles. A canal from the Severn to the Thames was completed in 1789. The first in Scotland was that from the Forth to the Clyde, completed in 1790, after twenty-two years of labour. The Caledonian was begun in 1803 and completed in 1822, being known as Neptune's Staircase, with 28 locks, and so arduous in making that the cost exceeded £19,000 a mile. The Grand Canal of Ireland, connecting Dublin with the Shannon, was begun in 1765 and completed in 1788.

In 1889 the canals of the United Kingdom were :—

	Miles			Worked by	
	Canals	Canalised Rivers	Total	Railways	Canal Cos.
England .	2,500	550	3,050	1,025	2,025
Scotland .	150	...	150	75	75
Ireland . .	144	470	614	96	518
U. Kingdom	2,794	1,020	3,814	1,196	2,618

The annual traffic was estimated as follows :—

Worked by	Miles	Tons Carried	Tons per Mile
Railways	1,196	6,600,000	5,500
Companies . . .	2,618	27,700,000	10,600
Total . .	3,814	34,300,000	9,000

They represent a capital of 36 millions sterling, or £9500 per mile ; annual dividends ranging from 2 to 5 per cent. Some allow vessels of 6 feet draught, others only 3 feet.

The canals of the United Kingdom in actual use in 1887 were as follows :—

						Miles
Owned by railways	.	.	.	.	.	1,421
Independent of railways	.	.	.	.	1,537
		Total	.	.	.	2,958

Nothing is known as to freight charges, but the net earnings do not seem to reach one shilling per ton carried.

FRANCE

The French statistics of canals are as follows :—

Date	Miles	Capital Cost	Per Mile
		£	£
1800 . . .	766	4,600,000	6,100
1813 . . .	890	7,700,000	8,600
1830 . . .	1,450	15,100,000	10,400
1847 . . .	2,690	27,800,000	10,300
1870 . . .	3,150	31,400,000	10,000

In the interval from 1770 to 1844 the following were constructed :—

Date of Works	Canal	Cost, £	Cost, £ Per Mile	Length, Miles	Fall, Feet
1770–1837	Somme	520,000	5,200	98	220
1775–1832	Burgundy	2,200,000	14,500	158	1,650
1784–1843	Nivernais	1,300,000	12,000	110	800
1785–1834	Rhone & Rhine	1,100,000	5,000	220	1,230
1806–1841	Nantes & Brest	1,800,000	8,000	230	1,810
1808–1841	Berry	1,100,000	5,500	200	810
1821–1838	Ardennes	600,000	9,000	65	440
1822 1838	Loire	1,200,000	9,600	124	350
...	Various	1,580,000	7,500	205	...
	Total	11,400,000	8,000	1,410	...

A statement published in 1870 of French canals showed :—

Date of Works	Miles	Cost, £	Cost, £ per Mile
1600–1820 . . .	710		
1821–1840 . . .	1,860	17,300,000	5,600
1841–1870 . . .	560		
Total . .	3,130	...	...

The following table shows the length and traffic of canals and canalised rivers at various dates :—

Year	Miles			Tons Carried 60 Miles		
	Canals	Rivers	Total	Canals	Rivers	Total
1850	2,425	4,200	6,625	7,300,000	9,400,000	16,700,000
1860	2,750	4,200	6,950	10,400,000	8,600,000	19,000,000
1870	2,850	4,200	7,050	9,000,000	5,500,000	14,500,000
1880	2,720	4,140	6,860	11,000,000	9,100,000	20,100,000
1885	2,910	4,820	7,730	13,300,000	11,200,000	24,500,000

It will be observed that there is only a seeming discrepancy in the above statements, the first referring merely to canals, the second including canalised rivers.

The first constructed in France was the Briare, connecting the Loire and Seine, 124 miles, begun in 1605 and finished in 1642 at a cost of £1,300,000 sterling. The Languedoc, one of the finest works of the kind, was made by Riquet under Louis XIV., being opened for traffic in 1668 ; it is 60 feet wide, 6½ deep, and is carried up to a height of 600 feet by means of 114 locks, affording transit for small vessels between the Mediterranean and the Bay of Biscay : length, 160 miles ; cost £680,000. The Central Canal connects the Loire and Saone, length 72 miles ; it was completed in 1791 at a cost of £6300 per mile, being carried to a height of 240 feet by means

of 81 locks, and navigable for vessels of 5 feet draught. The Burgundy, connecting the Rhone and Seine, was 57 years in construction, length 158 miles, and the most costly in France, averaging £14,500 a mile, or three times as much as the Languedoc, being carried to a height of 1650 feet. France has altogether 74 canals, with an aggregate length of 2900 miles, the average cost having been £7000 a mile, and the traffic yearly 8000 tons per mile.

GERMANY

The German Empire by latest accounts has 1320 miles of canal and 15,760 of navigable rivers, which differs but slightly from a statement published in 1878, viz. :—

	Mileage of Canals and Rivers
Prussia	8,140
Bavaria	1,160
Other States	7,690
Total . .	16,990

The canals of Prussia in 1869 had a length of 430 miles, and the total of navigable waters 3800 miles, perhaps only for vessels of large size. The traffic in 1878 in all internal waters of Germany occupied 20,900 canal-boats and 463 steamers, with an aggregate of 1,550,000 tonnage ; the goods carried on canals was about 8 million tons ; the principal canal is the Altmuhl, connecting the Rhine and Danube, 107 miles long, 54 feet wide ; vessels drawing 5 feet can go from the German Ocean to the Black Sea. The Elbe and Oder Canal is next in importance. By far the greatest inland water traffic is done by the Rhine, which carried 5,500,000 tons in 1866 and 6,100,000 in 1871 : the Prussian Government, between 1831 and 1871, spent 5 millions sterling on improving its course, reducing the length by one-fourth in point of time : the above traffic included 3 million tons of coal. The Elbe in 1872 was navigated by 11,760 vessels of all kinds, manned by 43,600 men ; the Weser by 3080 vessels, manned by 10,400 men ; the tonnage on the Elbe was 760,000, two-thirds up-stream.

RUSSIA

Official returns for 1886 show as follows :—

	Tons	System	Miles Open
Grain . . .	2,660,000	Caspian . .	8,880
Timber . . .	710,000	Black Sea . .	3,820
Fuel	2,220,000	Baltic . . .	5,050
Naphtha . .	540,000	Azof . . .	2,100
Sundries . .	2,480,000	Various . .	14,066
Total .	8,610,000	Total .	33,916

The total value of goods carried was £19,400,000. There were 1507 steamers, with an aggregate of 86,000 horse-power, 61,000 vessels without steam-power, and 74,000 rafts. In 1886 the Volga traffic stood for 86 per cent. of the total. It was completed in 1825 by the opening of the Vishney Canal, forming a direct highway of 1434 miles from St. Petersburg to the Caspian Sea. In 1889 a sum of £1,300,000 was set apart to make this route navigable for larger vessels up to 220 feet long. The Volga throws off another canal to Archangel in the North, by which goods are conveyed direct from the White Sea to the Caspian. The Tikwina, opened in 1822, is for empty boats returning from the Baltic to the Volga. The Kubinsko is mostly used for carrying timber ; it was opened in 1828 and has 300 vessels. The great centres of the Volga trade are Astrakan, Saratov, Nijni Novgorod, Moscow, and St. Petersburg, the whole system from Astrakan on the Caspian to Archangel on the White Sea being about 2500 miles in length, the Volga running

1900 miles without a rapid, whirlpool, or sandbank ; it is navigated by four steamboat companies with first-class steamers, and such is the traffic by boats and rafts that Nijni Novgorod employs 70,000 Bourlaki or raftsmen, going up or down to Moscow and Astrakan. Boats ascending the Volga usually take ninety days from the Caspian Sea to St. Petersburg. The proposed Dniester-Vistula canal, 460 miles, would connect the Black Sea with Dantzic on the German Ocean. The canal in construction from the Caspian to the Black Sea, 310 miles, is to cost £4,000,000. The inland waters of Russia employ 300,000 boatmen. Canals are open about 200 days of the year in the north, and 270 in the south. One of the earliest constructed was that by the Empress Marie at her own expense in 1808.

AUSTRIA-HUNGARY

A statement published in 1850 gave the Empire 5450 miles of internal navigation. In 1887 the total length of navigable rivers and canals was 7200 miles, including 1700 of canals. There are, however, only two canals of much traffic, that which connects the Theiss and Danube, 80 miles, and that from Vienna to Neustadt, 33 miles. There is continuous water communication from Vienna downward by the Danube to the Black Sea, and upward by the Altmuhl Canal and the Rhine to the German Ocean, in all 1800 miles, of which more than 1000 is by the Danube. Steamboats were introduced on this river in 1850, and it was thrown open to vessels of all flags in 1856. The traffic returns of the Danubian Company in 1880 and 1887 were as follows :—

	1880	1887
Steamers of Company . .	193	190
Tugs	700	729
Passengers . . .	2,600,000	1,650,000
Goods, tons . . .	1,350,000	1,710,000

In summer the part above Vienna is only navigable for vessels of two feet draught.

According to a Government report in 1887 Austria proper had :—

	Miles		Miles
Navigable rivers .	2,440	Vessels and rafts	2,450
Canals	1,710	Rafts only . .	1,700
Total . .	4,150	Total . .	4,150

A sum of £230,000, say £50 a mile, is spent annually on their maintenance. Hungary has 3050 navigable miles.

ITALY

The navigable mileage of Italy is as follows :—

	Miles		*Miles*
Po	340	Tiber . . .	90
Adige . . .	130	Arno	66

to which add 664 miles of navigable canals, making in all 1290 miles. Lombardy has twelve canals, but only two are navigable, the rest being for irrigation, as are likewise those of Pavia, Padua, and Pisa. The Cavour Canal is the most important, pouring 400,000 tons of water hourly from the Po into the Ticino. Duke Torlonia made a canal recently at Lake Fucino. It is proposed to make a canal from Rome to Ostia, 16 miles long, 72 feet wide, 26 feet deep, cost £7,400,000.

SPAIN AND PORTUGAL

Spain has 1085 miles, Portugal 470, of inland navigation. The Imperial Canal of Arragon, begun in the last century, is far from completion. In combination with

the Canal of Castile it will connect the Mediterranean with the Bay of Biscay, a length of 405 miles, of which only 175 are now made; it is 60 feet wide and 10 in depth. The other canals are of trifling importance, and sum up 95 miles. The principal watercourses of the Peninsula are :—

	Miles			Miles
Tagus	. . . 570	Ebro .	. . .	470
Douro	. . . 490	Guadalquiver	. .	300

Not more than half the above mileage is navigable.

HOLLAND

Without counting rivers, this country has 9 miles of canal for every 100 square miles of area, a proportion not equalled elsewhere, and four times as great as in the United Kingdom. The Dutch canals have an aggregate length of 1830 miles, the traffic occupying 5600 Trekshuits for conveying passengers, and 15,000 flat boats for cargo; for the maintenance of these canals the State expends £500,000 yearly. The Helder, begun in 1819 and completed six years later, is 60 miles long, 120 feet wide, and 20 deep, allowing two merchantmen to pass abreast, and navigable for the largest vessels; the traffic in 1877 exceeded 1,500,000 tons. The Y, or North Sea canal, made in 1863-74, is 240 feet wide and 23 deep, and brings Amsterdam within 15 miles of the sea: length, 14 miles, cost £2,000,000. The Maestricht is navigable for vessels up to 800 tons.

The water-ways of Holland sum up 2700 miles, irrespective of canals for irrigation.

BELGIUM

This country with relation to area possesses double the mileage of internal navigation that Holland can boast, and six times the European average. There are 29 canals, summing up 535 miles, and 540 miles of navigable rivers. The chief canal is from Brussels to Charleroi, 46 miles, the toll amounting to £1,020,000 yearly; working expenses, £460,000. The amount of tonnage carried on all the canals is 7,700,000 tons.

Traffic returns show as follows :—

	Tons Carried 60 Miles	
	1880	1886
Coal	1,600,000	1,700,000
Other minerals . . .	2,100,000	2,100,000
Agricultural products .	1,300,000	1,200,000
General merchandise .	2,200,000	2,700,000
Total . .	7,200,000	7,700,000

SCANDINAVIA

Sweden has 365 miles of canal, which are open to traffic 210 days in the year, being frozen the rest. Over £200,000 was spent on canals between 1840 and 1860. The Gotha Canal is the most remarkable; it was attempted by various kings without success, and finally commenced by a joint-stock company in 1793, and completed in 1800, at a cost of £72,000, being only three miles long, but cut through a rock 150 feet high; it has eight locks, and is navigable for vessels of 6 feet draught, paying a usual dividend of 12 per cent. In later years a canal has been made from Lake Meler, near Stockholm, to the German Ocean. In 1886 there were 69,300 vessels paid canal tolls.

Denmark has the Eyder Canal connecting the Baltic and the German Ocean, 26 miles long and 10 feet deep, begun in 1777, and completed in 1784 at a cost of £510,000.

UNITED STATES

The water-ways of the great Republic were stated in 1880 thus :—

	Miles
Navigable rivers	47,355
Canals in use	2,515
Canals abandoned	1,964
Shore line of lakes . . .	3,620
Total . . .	55,454

In 1860 there were 118 canals, with an aggregate of 5460 miles, supposed to have cost 48 millions sterling. This is, however, in excess of an official return published in 1880, viz. :—

	Miles				Earnings per	Cost of
	In Use	Abandoned	Total	Tons Carried	Mile	Construction
					£	£
New York . . .	608	357	965	7,770,000	430	16,000,000
Pennsylvania . . .	629	477	1,106	6,100,000	515	11,000,000
Ohio	674	205	879	840,000	60	4,000,000
Maryland	194	...	194	1,310,000	370	2,000,000
New Jersey . . .	171	...	171	1,860,000	750	2,000,000
Illinois	102	...	102	750,000	220	1,500,000
Virginia	43	197	240	4,045,000	490	2,000,000
Other States . . .	94	728	822	2,368,000	424	5,500,000
Total . .	2,515	1,964	4,479	25,043,000	355	44,000,000

The earnings per mile are computed on the canals in use. The first canal was that of Middlesex, from Boston to Concord, 27 miles, completed in 1789 at a cost of £110,000 sterling. The famous Hudson and Erie, 363 miles long and 40 feet wide, was opened in 1825, after eight years of labour, being carried over a range of hills 690 feet high by means of 83 locks and 18 aqueducts, at a cost of £1,800,000. The Delaware and Chesapeake, 14 miles long and 10 feet deep, was opened in 1826, having taken three years to make, and cost £400,000. A canal from Lake Champlain to the Hudson, 63 miles, cost £175,000. In 1830 was opened the great Cincinnati and Erie Canal, 306 miles, cost £600,000; also the Cincinnati and Miami, 70 miles, and a canal connecting the Dismal Swamp and

the Ohio. Another grand work was the Chesapeake and Ohio, opened in 1834 after six years of construction, 360 miles long, 60 feet wide, including a tunnel four miles long through the Alleghanies. Various canals were at the same time opened in Pennsylvania, in the aggregate 730 miles.

The navigable rivers are officially stated thus :—

	Miles		Miles
Mississippi and tributaries .	11,108	Arkansas . .	3,250
Missouri ,, ,,	7,830	Texas . . .	1,210
Ohio ,, ,,	7,342	Big Black . .	1,190
Red River ,, ,,	4,924	Atlantic rivers	10,501

The traffic of these rivers and the great lakes is enormous. In 1880 the Mississippi and tributaries had 1100 steamboats and 850 flats, with a capacity of 415,000 tons, carrying merchandise worth 400 millions sterling per annum. The tug-boat *Ajax*, for example, has been known to tow at once 32 flats carrying 21,000 tons, which would have filled 2100 railway waggons. The great lakes have 900 steamers and 1800 sailing vessels, and flats with an aggregate of 590,000 tons, carrying over 9 million tons yearly, of which 2 million tons grain. The ordinary cost of freight in the inland waters of the Republic is 4s. per ton per 100 miles (one cent. per mile), or one-half of what is usual in Europe.

CANADA

There are 7 canals, and these with the navigable rivers make up a total of 3355 miles of water-way. The Rideau, from Kingston to Ottawa, 132 miles, has 47 locks, and was constructed by Great Britain at a cost of £800,000. The Grenville, from Rideau to Montreal, gives a complete system of navigation up to Niagara, 460 miles. The Welland, from Erie to Ontario, 41 miles, cost £1,400,000, width 80 feet, depth 56 feet. The construction of 7 canals cost £6,500,000, being an average of £12,000 per mile; aggregate length 535 miles. Moreover, the St. Lawrence has been canalised at a cost of 6 millions sterling, so that vessels of 4000 tons can ascend to Montreal, which is 1000 miles from the sea, and those of 1500 tons, drawing 14 feet, can proceed from Montreal up to Lake Erie and Chicago: before the canalization no vessels exceeding 400 tons could get up to Montreal from the sea. The traffic showed as follows as regards vessels passing through Canadian canals:—

	1876	1887
Vessels	27,400	22,870
Tonnage	3,500,000	3,410,000
Passengers . . .	92,000	83,000

Tolls paid in 1876 reached £84,000. Freight of merchandise in 1887 showed 2,820,000 tons.

INDIA

Canals for navigation were begun in 1854, and the construction proceeded so rapidly that in 1862 the following were in traffic:—

Name	Miles	Cost, £
Bengal	900	2,000,000
Jumna	600	500,000
Punjaub	450	4,000,000
Total . .	1,950	6,500,000

Irrigation canals have since been made at an outlay of 17 millions sterling. The maintenance of all canals in India costs 3 millions sterling per annum. The Bengal Canal connects with the Ganges, and has a depth of 10 feet. Navigable rivers have an aggregate length of about 2600 miles.

CHINA

The Imperial Canal of China is the longest in the world, and the greatest in point of traffic: its length is 2100 miles, including river sections (or 825 miles the canal proper), and it connects 41 cities situated on its banks. It was completed A.D. 1350, after 600 years spent in its construction. China has 400 minor canals, of a supposed aggregate of 4450 miles, besides 3800 miles of river navigation.

CANOE

The *Rob Roy*, which navigated 3000 miles of European rivers, was 13 feet long, 26 inches wide, and 12 inches deep.

CAPITAL

In 1882 the following table was published of stocks quoted on the London Exchange:—

	Millions £		
	Amount Quoted on Stock Exchange	Amount Held in Great Britain	Interest Earned in Great Britain
National debt .	762	700	21
Colonial debts .	220	200	10
Foreign ,, .	2,016	400	22
British railways .	730	700	30
Foreign and colonial . .	825	275	14
Banks	272	260	15
Docks, gas, &c. .	125	120	10
Total . .	4,950	2,655	122

The amount of new capital called up in twelve years down to 1882 was:—

	Millions £			
Years	Loans	Companies	Total	Annual Average
1871-74 . .	930	1,230	2,160	540
1875-78 . .	520	420	940	235
1879-82 . .	430	820	1,250	312
Total .	1,880	2,470	4,350	362

Great Britain provided about one-fourth of the total; some estimates say one-third.

The aggregate amount called up in four years, 1879–82, was as follows:—

	Amount in Millions £		Amount in Millions £
Great Britain .	182	Spain . . .	25
France . .	301	Portugal . .	11
Germany . .	38	Switzerland .	17
Russia . .	107	Belgium . .	27
Austria . .	75	Holland . .	14
Italy . . .	40	United States .	210

Mr. Neumann Spallart sums up the new capital called up in England, France, Germany, and Austria during fifteen years thus:—

	Millions £ Sterling		
Period	Public Loans	Railways and Companies	Total
1871-75 . . .	942	863	1,805
1876-80 . . .	702	539	1,241
1881-85 . . .	368	605	973
15 years . . .	2,012	2,007	4,019

This is an average of 270 millions sterling per annum, or about 40 per cent. of the wealth annually accumulated in the above four countries. One-half of the above went in public loans. If we consider only joint-stock companies Mr. Spallart's figures give an annual average of 135 millions sterling for the four countries, which is in

harmony with a statement published in 1882 regarding the money invested in new companies of Europe, America, &c., in twelve years, viz. :—

Years	Millions £	
	Amount, Capital	Annual Average
1871–74 . . .	1,230	308
1875–78 . . .	420	105
1879–82 . . .	820	205
Total . .	2,470	205

It may be assumed that, irrespective of public loans, the amount of new capital absorbed by joint-stock companies all over the world reaches 200 millions sterling per annum. The average annual outlay of new capital in the years 1881–85 was approximately as follows :—

	£			£
Railways.	. . 102,000,000	Mines	. . . .	7,000,000
Banks	. . . 22,000,000	Electricity	. . .	6,000,000
Building	. . . 15,000,000	Newspapers	. .	5,000,000

The new companies formed in 1889 were said to represent 203 millions sterling in the United Kingdom.

United Kingdom.—According to the *Investor's Manual*, the new capital called up in London in eleven years was as follows :—

Years	Million £	Per Annum
1879–82 . . .	335	84
1883–85 . . .	246	82
1886–89 . . .	507	127
11 years . . .	1,088	99

The number and capital of joint-stock companies registered in the United Kingdom in twenty-four years down to 1885 were as follows :—

Period	Number	Capital, Million £	New Capital per Annum, Million £
1862–70	6,179	1,010	112
1871–80	10,862	970	97
1881–85	8,002	890	178
Total . . .	25,043	2,870	120

The amount of new capital in 1881–85, if all these companies had been successfully carried out, would have been in excess of the annual accumulation of wealth.

The new capital called up at Berlin in 1888–89 was :—

The result of the above companies down to 1885 was as follows :—

	Number	Capital, Million £
Burst or wound up . .	15,699	2,375
Existing in 1885 . . .	9,344	495
Total . .	25,043	2,870

The actual number of companies existing in the United Kingdom was :—

Year	Number	Capital, £
1877	...	307,200,000
1887	10,894	591,500,000

A return published down to March 1889 showed that in twenty-seven years 30,372 companies had been registered, with an aggregate capital of 3443 millions sterling ; of these, 1684 had been wound up judicially. The actual number may be taken as 11,000, with a capital of 600 millions.

The *Investor's Guardian* published the following list of new companies in the United Kingdom during the year 1889 :—

New Companies	Capital, £	New Companies	Capital, £
Banks	57,200,000	Railways. . .	10,100,000
Mines . . .	37,000,000	Shipping. . .	5,300,000
Manufactures .	21,800,000	Electric . . .	5,300,000
Breweries. . .	17,600,000	Gas and Water	2,700,000
Land	12,900,000	Various . . .	52,100,000

making a total of 222 millions sterling ; but nearly half of these companies died still-born, Messrs. Spackmann showing that the total subscribed was only £125,400,000, and the amount actually paid on calls £39,300,000.

France.—New capital called up at Paris in 1889 was :—

	£
Public loans	123,500,000
Railways	8,100,000
Banks, mines, &c. . . .	19,800,000
Total . .	151,400,000

Prussia.—Engel gives the joint-stock companies established in seventy-five years thus :—

Period	Number	Capital, Millions £
1801–70	418	171
1871–75	857	238
75 years . . .	1,275	409
Liquidated . . .	143	30
Existing in 1875 . .	1,132	379

Wenzel adds that from 1875 to 1883 there were established 567 new companies, with an aggregate capital of 28 millions sterling.

	1888	1889	1889	
			Foreign	German
	£	£	£	£
Public loans	55,500,000	20,800,000	10,000,000	10,800,000
Bonds, debentures, &c.	26,300,000	36,400,000	22,500,000	13,900,000
New companies	10,300,000	20,300,000	5,000,000	15,300,000
Total . .	92,100,000	77,500,000	37,500,000	40,000,000

New companies were as follows :—

Year	Capital, £	No.	Average Capital, £
1888 . . .	9,700,000	184	52,500
1889 . . .	20,100,000	360	55,000

Austria.—The number of joint-stock companies existing at Vienna was as follows :—

Year	No.	Year	No.
1840	23	1867	154
1850	35	1873	1,159

In the last-mentioned year the aggregate capital was 400 millions sterling. The new companies formed from 1871 to 1880 in Austria-Hungary had an aggregate capital of 393 millions sterling.

An official return in 1887 showed the average profits on capital in Austria as follows :—

	Per Cent.			Per Cent.
Gas	12.4	Foundries	.	6.5
Insurance	10.5	Banks	.	6.4
Sugar	8.8	Paper-mills	.	5.6
Breweries	8.3	Mines	.	4.8
Textile mills	6.6	Steamboats	.	2.0

The general average on all companies was as follows :—

1878–83 . . 7.1 | 1885–87 . . 6.5

The average was only 6.2 for the year 1887.

Italy.—Official returns of the existing joint-stock companies showed :—

Year	Number	Capital, Millions £
1870	413	68
1880	644	80
1884	1,037	110

India.—In 1888 there were 910 joint-stock companies, with an aggregate paid-up capital of 22 millions sterling; this included 97 started during the year with a capital of £1,800,000 in the aggregate. The existing companies were :—

	£
Cotton-mills	8,700,000
Banks	3,500,000
Tea and coffee plantations .	3,600,000
Sundries	6,200,000
Total .	22,000,000

CARRIAGES

The number used in Great Britain has increased since 1812 faster than wealth, as appears on comparing the licenses with the number of persons paying income-tax on more than £200 a year :—

Year	Carriages	Over £200 Income	Ratio of Carriages	Carriages per 1000 Inhabitants
1812	63,130	39,765	158–100	5
1830	85,060	...	...	5
1860	245,000	85,530	287–100	11
1870	325,000	130,375	250–100	12
1880	463,000	210,430	221–100	15

CATTLE

In the last 60 years there has been a very great increase of the various kinds of live-stock : thus horses have increased 104 per cent., cattle 127, sheep 139, pigs 55 per cent. This is much greater (except as regards pigs) than the increase of population in Europe, United States, and Colonies, which has been just 70 per cent.

The following table shows approximately the numbers of each class of live-stock in all countries at various dates :—

HORSES

	1830	1850	1870	1887
United Kingdom	1,500,000	2,000,000	1,900,000	1,940,000
Continent	24,020,000	27,450,000	31,080,000	36,710,000
United States	2,500,000	4,900,000	9,400,000	15,400,000
British Colonies	300,000	800,000	1,900,000	2,900,000
River Plate	2,400,000	3,400,000	4,600,000	5,100,000
Total	30,720,000	38,550,000	48,880,000	62,050,000

CATTLE

	1830	1850	1870	1887
United Kingdom	5,200,000	7,950,000	8,700,000	10,300,000
Continent	62,170,000	72,170,000	81,100,000	91,550,000
United States	8,100,000	17,800,000	25,500,000	49,200,000
British Colonies	1,400,000	3,800,000	8,400,000	14,400,000
River Plate	9,200,000	14,400,000	18,300,000	29,700,000
Total	86,070,000	116,120,000	142,000,000	195,150,000

SHEEP

	1830	1850	1870	1887
United Kingdom	25,000,000	27,970,000	33,800,000	28,900,000
Continent	144,040,000	155,980,000	175,600,000	168,800,000
United States	6,500,000	21,700,000	40,850,000	43,500,000
British Colonies	4,400,000	17,200,000	64,300,000	112,300,000
River Plate	3,400,000	7,300,000	47,500,000	81,000,000
Total	183,340,000	230,150,000	362,050,000	434,500,000

PIGS

	1830	1850	1870	1887
United Kingdom	4,000,000	3,680,000	4,200,000	3,800,000
Continent	40,460,000	34,750,000	39,700,000	44,500,000
United States	16,000,000	30,400,000	26,700,000	44,400,000
British Colonies	1,100,000	1,400,000	2,200,000	2,400,000
River Plate	200,000	200,000	300,000	400,000
Total	61,760,000	70,430,000	73,100,000	95,500,000

VALUE OF ALL LIVE-STOCK, MILLIONS STERLING.

Year	Europe	U. States	Colonies, &c.	Total
1830	730	70	23	823
1850	1,018	114	48	1,180
1870	1,496	274	130	1,900
1887	1,900	501	215	2,616

The number of live-stock, as we have seen, has a little more than doubled in sixty years: the value, meantime, has more than trebled. It must be borne in mind that the foregoing tables include only Europe, the United States, British colonies (without India), and the River Plate, and in these the value of all descriptions of cattle has risen more than 700 millions sterling since 1870. In that interval the value in the United States and Colonies has almost doubled.

Mr. Simmonds has taken great pains to ascertain the number of each class of live stock in the several parts of the world in 1890, and sums up the result as follows:—

	Horses	Asses and Mules	Cattle	Sheep	Pigs	Goats
Europe	34,865,000	4,900,000	104,166,000	214,499,000	46,152,000	21,546,000
Asia	4,443,000	1,061,000	70,850,000	71,669,000	53,974,000	9,220,000
Africa	721,000	1,068,000	8,203,000	60,820,000	840,000	24,055,000
America	21,920,000	3,286,000	117,249,000	143,581,000	417,000	4,851,000
Australasia	1,520,000	3,000	9,339,000	98,366,000	1,143,000	299,000
Total	63,469,000	10,318,000	309,807,000	588,935,000	102,526,000	59,971,000

In 1830 the live-stock of various countries in Europe was estimated approximately as follows:—

	Horses	Cattle	Sheep	Pigs	Value, Million £
United Kingdom	1,500,000	5,200,000	25,000,000	4,000,000	84
France	2,600,000	6,700,000	35,200,000	4,500,000	96
Germany	2,500,000	9,770,000	17,300,000	4,500,000	88
Russia	12,000,000	19,000,000	36,000,000	15,800,000	176
Austria	2,500,000	10,500,000	12,000,000	5,500,000	80
Italy	800,000	3,500,000	6,500,000	2,500,000	30
Spain	1,400,000	2,950,000	18,700,000	2,730,000	38
Portugal	100,000	650,000	1,200,000	700,000	8
Sweden and Norway	490,000	2,300,000	2,440,000	580,000	19
Denmark	250,000	800,000	1,000,000	200,000	16
Holland and Belgium	500,000	2,000,000	1,200,000	1,200,000	26
Switzerland	80,000	800,000	500,000	250,000	6
Turkey, &c.	800,000	3,200,000	12,000,000	2,000,000	63
Europe	25,520,000	67,370,000	169,040,000	44,460,000	730

In 1850 the numbers were approximately as follows:—

	Horses	Cattle	Sheep	Pigs	Value, Million £
United Kingdom	2,000,000	7,950,000	27,970,000	3,680,000	104
France	3,130,000	12,150,000	33,300,000	5,250,000	166
Germany	2,500,000	11,270,000	21,330,000	3,920,000	138
Russia	13,500,000	20,960,000	37,530,000	8,890,000	223
Austria	3,240,000	10,460,000	17,080,000	7,410,000	120
Italy	800,000	3,660,000	7,000,000	2,000,000	36
Spain	1,500,000	1,400,000	13,800,000	1,300,000	40
Portugal	120,000	750,000	1,980,000	750,000	10
Sweden	400,000	1,630,000	1,470,000	500,000	20
Norway	140,000	900,000	1,500,000	100,000	10
Denmark	300,000	880,000	1,160,000	200,000	17
Holland	270,000	1,260,000	620,000	500,000	20
Belgium	260,000	1,100,000	660,000	650,000	16
Switzerland	90,000	950,000	550,000	280,000	8
Turkey, &c.	1,200,000	4,800,000	18,000,000	3,000,000	90
Europe	29,450,000	80,120,000	183,950,000	38,430,000	1,018

In 1870 the numbers were approximately :—

	Horses	Cattle	Sheep	Pigs	Value, Million £
United Kingdom	1,900,000	8,700,000	33,800,000	4,200,000	170
France	2,990,000	11,720,000	25,900,000	5,760,000	205
Germany	3,200,000	15,400,000	26,500,000	6,800,000	212
Russia	15,600,000	21,400,000	45,300,000	9,100,000	409
Austria	3,540,000	12,630,000	20,100,000	6,990,000	178
Italy	1,020,000	3,490,000	6,980,000	1,550,000	45
Spain	1,610,000	2,450,000	20,200,000	3,000,000	64
Portugal	130,000	520,000	2,420,000	860,000	10
Sweden	430,000	1,970,000	1,600,000	350,000	25
Norway	150,000	980,000	1,700,000	100,000	14
Denmark	350,000	1,300,000	1,800,000	440,000	20
Holland	250,000	1,410,000	900,000	330,000	24
Belgium	280,000	1,240,000	600,000	630,000	20
Switzerland	100,000	1,010,000	570,000	340,000	10
Turkey, &c.	1,430,000	5,600,000	21,000,000	3,500,000	90
Europe . .	32,980,000	89,820,000	209,370,000	43,950,000	1,496

The returns for 1887 for the various countries show :—

	Horses	Cattle	Sheep	Pigs	Goats	Value, Million £
England	1,240,000	5,060,000	18,580,000	2,270,000	} 305,000	} 104
Scotland	190,000	1,110,000	6,730,000	150,000	}	26
Ireland	510,000	4,100,000	3,630,000	1,400,000	295,000	55
United Kingdom	1,940,000	10,270,000	28,940,000	3,820,000	600,000	185
France	3,200,000	13,380,000	22,600,000	5,850,000	1,550,000	218
Germany	3,520,000	15,790,000	19,200,000	9,210,000	2,640,000	262
Russia	20,020,000	23,840,000	47,510,000	9,200,000	1,370,000	576
Austria	1,480,000	8,580,000	3,840,000	2,720,000	1,010,000	106
Hungary	2,080,000	5,310,000	9,840,000	4,160,000	330,000	96
Italy	1,120,000	4,780,000	8,590,000	1,160,000	2,020,000	83
Spain	1,840,000	3,090,000	22,800,000	4,470,000	4,530,000	95
Portugal	140,000	630,000	3,000,000	970,000	940,000	13
Sweden	490,000	2,380,000	1,440,000	550,000	90,000	36
Norway	150,000	1,020,000	1,690,000	100,000	320,000	15
Denmark	350,000	1,470,000	1,550,000	530,000	140,000	30
Holland	270,000	1,480,000	750,000	430,000	160,000	28
Belgium	270,000	1,380,000	370,000	650,000	250,000	24
Switzerland	110,000	1,100,000	700,000	340,000	370,000	10
Finland	...	1,030,000	1,030,000	150,000	...	11
Greece	100,000	260,000	2,300,000	30,000	1,860,000	24
Bosnia	210,000	505,000	1,310,000	...	...	9
Roumania	600,000	3,600,000	6,180,000	2,310,000	190,000	37
Servia	160,000	960,000	3,600,000	1,700,000	...	16
Turkey	600,000	1,000,000	10,500,000	...	720,000	26
Europe	38,650,000	101,855,000	197,740,000	48,350,000	19,090,000	1,900
United States	15,400,000	49,200,000	43,540,000	44,350,000	...	501
Canada	1,160,000	4,005,000	2,600,000	1,220,000	...	44
Australia	1,480,000	9,140,000	96,600,000	1,100,000	...	67
Cape Colony	260,000	1,270,000	13,070,000	140,000	2,790,000	13
Algeria	350,000	1,210,000	8,790,000	300,000	...	28
Argentina	4,400,000	22,870,000	70,450,000	300,000	...	49
Uruguay	670,000	6,830,000	10,540,000	100,000	...	14
Total . .	62,370,000	196,380,000	443,330,000	95,860,000	21,880,000	2,616

If we compare the various kinds of cattle with population in Europe at various dates, we find as follows :—

Year	Numbers				Per 1000 Inhabitants			
	Horses	Cattle	Sheep	Pigs	Horses	Cattle	Sheep	Pigs
1830 . . .	25,520,000	67,370,000	169,000,000	44,460,000	11	31	77	20
1850 . . .	29,450,000	80,100,000	183,900,000	38,400,000	11	32	72	15
1870 . . .	32,980,000	89,800,000	209,400,000	43,900,000	11	30	70	15
1880 . . .	36,100,000	96,200,000	200,000,000	47,000,000	11	30	63	15
1887 . . .	38,600,000	101,800,000	197,700,000	48,400,000	11	30	58	15

The following table shows the relative figures in Europe for population, horses, cattle, sheep, and pigs at various dates, taking 1830 at 100 :—

	1830	1850	1870	1880	1887
Population	100	118	134	142	150
Horses	100	116	130	144	151
Cattle	100	120	135	144	152
Sheep	100	108	123	118	117
Pigs..	100	86	99	107	109

It appears, therefore, that the increase of horses and cattle kept pace with that of population. The value of all kinds of cattle at different dates compared with population thus, in Europe :—

Year	Population	Value of Cattle, Millions £	Ratio per Inhabitant
			£ s. d.
1840 . . .	236,200,000	875	3 14 0
1860 . . .	275,900,000	1,260	4 9 0
1887 . . .	333,000,000	1,900	5 14 0

The following table shows the number of each kind of cattle to every 100 inhabitants in each country in 1850 and in 1887 : —

PER 100 INHABITANTS

	Horses		Cattle		Sheep		Pigs	
	1850	1887	1850	1887	1850	1887	1850	1887
U. Kingdom	6	5	28	28	135	76	15	10
France . .	9	8	40	36	94	60	15	15
Germany . .	7	8	48	35	70	42	16	20
Russia. . .	22	20	35	28	62	55	15	11
Austria . .	11	9	35	37	57	36	25	18
Italy . . .	4	4	17	16	33	28	10	4
Spain . . .	10	11	16	18	110	140	9	28
Portugal . .	3	3	19	14	50	70	19	22
Sweden . .	11	10	50	52	45	31	11	12
Norway . .	10	8	60	50	110	84	7	5
Denmark . .	40	18	112	74	135	80	33	27
Holland . .	8	7	36	35	25	17	7	10
Belgium . .	6	5	27	25	15	7	11	12
Switzerland .	4	4	38	40	18	25	13	12
Greece . .	5	6	20	15	170	130	14	3
Roumania .	...	12	40	70	80	115	19	40
Servia . . .	...	8	60	50	215	185	102	90
Europe . . .	11	11	34	30	78	58	16	15
United States	20	25	75	75	97	68	130	69
Canada . .	25	23	90	80	100	54	50	25
Australia . .	10	40	160	250	1,100	2,600	30	30
Cape Colony	33	25	140	120	1,800	1,300	20	14
Arg. Republic	280	120	820	605	1,200	1,860	10	11
Uruguay . .	210	110	1,340	1,140	680	1,800	5	5

The countries relatively richest in horses and horned cattle are the Argentine Republic and Uruguay, while Australia leads in sheep, and pigs are most numerous in Servia and Roumania. Those poorest in horses are Italy and Spain ; in cattle, Portugal ; in sheep, Belgium ; and in pigs, Greece. The highest prices for animals have

been recorded in England, a cow called Ouida fetching £6200 in 1880, and a horse called Ormond £14,000 in 1889.

CEMENT

The exportation from the United Kingdom showed thus :—

Year	Tons	Value, £	Per Ton, £
1853	21,000	64,000	3.0
1860	79,000	215,000	2.9
1870	150,000	366,000	2.4
1880	277,000	690,000	2.5
1888	613,000	1,160,000	1.9

CHARITIES

The approximate value of property held for charitable purposes in 1880 was :—

	£	Per Inhabitant
		£ s. d.
England . . .	51,300,000	2 1 0
France . . .	70,000,000	1 17 0
Italy	65,300,000	2 8 0

The supposed expenditure for charitable purposes and sources of income are shown thus :—

	United Kingdom	France	Italy
	£	£	£
Endowment . .	2,490,000	2,400,000	1,880,000
Annual bequests .	650,000	1,194,000 }	
Subscription . .	6,900,000	1,500,000 }	400,000
State subsidy . .	...	460,000	...
Total . . .	10,040,000	5,554,000	2,280,000

In 1889 charitable bequests of the United Kingdom amounted to one million sterling, of which £250,000 fell to London, irrespective of donations by living persons.

Hospitals constitute the principal element of charitable institutions.

Continental hospitals usually receive large municipal subsidies, viz. :—

City	Subsidy	Pence per Inhab.	City	Subsidy	Pence per Inhab.
	£			£	
Paris . . .	358,000	42	Nantes . .	15,000	30
Berlin . . .	70,000	16	Florence . .	14,000	21
New York .	34,000	7	Venice . .	14,000	25
Copenhagen .	32,000	36	Stockholm .	11,000	16
Leipsic . .	31,000	55	Toulouse .	10,000	18
Marseilles. .	24,000	16	Turin . . .	10,000	13
Vienna. . .	23,000	5	Buda . . .	9,000	6
Genoa . . .	23,000	27	Christiania .	8,000	22
San Francisco	20,000	21	Rennes . .	8,000	21
Rouen . . .	19,000	44	Havre . .	5,000	11
Bordeaux . .	17,000	18	Frankfort .	4,000	8

The following table shows the number of beds in various cities and countries :—

Year	Place	Beds	Beds per 10,000 Inhabitants	Year	Country	Beds	Beds per 10,000 Inhabitants
1889	London . . .	7,100	18	1882	U. Kingdom .	16,400	5
,,	Dublin . . .	800	21	1885	France . . .	73,900	19
1880	Paris	9,000	41	1886	Austria proper .	32,500	16
,,	New York . .	1,100	9	,,	Wurtemburg .	8,800	47
1876	Rome. . . .	1,500	50	1880	Spain	18,200	10
1872	Rio Janeiro . .	1,100	48	1849	Prussia . . .	8,800	4

In the hospitals of the United Kingdom, New York, and France the average of days to each patient are :—

Dublin	.	.	27	New York . .	40
Paris	.	.	28	All England .	31
Glasgow	.	.	30	All France . .	35

The death-rate of hospitals in various countries is shown thus :—

			Per Cent.					Per Cent.
England	.	.	8.0	Austria	.	.	.	8.0
Scotland	.	.	9.5	Rome	.	.	.	7.1
Ireland	.	.	6.5	Lisbon	.	.	.	13.4
France	.	.	9.5	Norway	.	.	.	12.0

Next in importance after hospitals are asylums for the aged and infirm or for orphans. Those of the United Kingdom and France are shown thus :—

	United Kingdom	France
Number of beds . . .	104,000	120,300
Cost yearly . . .	£2,600,000	2,760,000

In New York the Children's Aid Society picks up 10,000 yearly, and gives them trades. The orphan asylums of France in 1882 had 61,000 children under training. There are foundling hospitals in France (of which later on), that of Paris receiving 3000 infants yearly, of whom 60 per cent. die under 12 months. At Moscow a similar institute receives 12,000 per annum, the boys being brought up for the navy.

For founders of hospitals and asylums see *Munificence.*

UNITED KINGDOM

The expenditure for charities is estimated thus :—

					£
Charity schools	.	.	.	.	4,200,000
Asylums and homes	.	.	.	.	2,600,000
Bible societies	.	.	.	.	2,040,000
Hospitals	.	.	.	.	1,200,000
	Total	.	.	.	10,040,000

London charities stand for 46 per cent. of the total. They were :—

	Number		Expenditure, £	
	1859	1889	1859	1889
Asylums for old, blind, &c.	135	205	113,000	641,000
Orphanages and homes .	181	318	409,000	835,000
Hospitals and dispensaries	92	209	301,000	655,000
Bible missions	14	112	460,000	1,980,000
Sundry institutions . . .	60	180	400,000	570,000
Total	482	1,024	1,683,000	4,681,000

London charities averaged 12s. per inhabitant in 1859, and 22s. in 1889. It is to be observed, however, that in 1889 almost half the total was devoted to Bible missions, most of which had no connection with London charities. The collections on Hospital Sunday in 1889 reached £38,700, those of Hospital Saturday average £5000 a year. These collections were distributed in 1889 among 86 hospitals and 35 dispensaries (the total number in London being 93 and 116 respectively), and the report published showed that in the year 1888 the said 121 institutions received and treated 76,900 indoor and 1,470,000 outdoor patients, at an outlay of £723,000, being £27,000 over income. The London hospitals had altogether nominally 9700 beds, but only 7100 in use, the remaining 2600 being kept vacant for want of funds.*

* There were also 27 poor-law infirmaries with 11,900 beds, which cost in the year £336,000, say £28 each. London has in the aggregate 239 institutions for sick relief, which in the year 1887 treated 122,050 indoor and 1,855,000 outdoor patients.

The cost per bed varied from £19 in larger to £42 in smaller hospitals.

The principal hospitals of the United Kingdom in 1882 were :—

Hospitals	Founded A.D.	Beds	Annual Patients	Death-Rate
St. Bartholomew's	1547	600	5,500	6.0
St. Thomas's . .	1548	360	3,200	12.0
Guy's	1722	620	5,600	9.7
Bristol	1735	270	2,600	7.0
Leicester . . .	...	220	2,000	5.0
Edinburgh . .	1736	500	4,500	10.5
Aberdeen . . .	1739	240	2,100	6.5
Manchester . .	1753	330	3,000	10.8
Liverpool . . .	...	330	3,000	7.2
Leeds	1767	330	3,000	7.0
Birmingham . .	1778	300	2,700	8.0
Glasgow . . .	1794	630	5,700	10.7
Misericordia (Dublin) . }	1855	230	2,100	6.5
London (White-chapel) . . }	...	790	7,170	...

There are in the United Kingdom 496 hospitals, with 16,400 beds, relieving 145,000 sick yearly, who are attended by 820 physicians. Total expenditure, £1,200,000, or £8 per patient, equal to 5s. a day for each bed occupied. Death-rate is lowest in small hospitals, viz. :—

Less than 100 beds	.	.	.	.	6.5
100 to 200 beds	.	.	.	.	7.1
Over 200 beds	.	.	.	.	8.0

In the year 1800 there were but 51 hospitals in Great Britain and Ireland.

Charitable endowments have not increased much in the last fifty years. The amounts in 1837 and 1876 compare as follows :—

Year	Endowments	Wealth of U. Kingdom in Millions £	Endowed Sums, per £1000 of Wealth
			£ s. d.
1837 . .	42,600,000	4,100	10 8 0
1876 . .	51,300,000	8,050	6 8 0

The income of endowed charities has actually declined since 1876, viz. :—

						£
1837	.	.	.	.	.	1,940,000
1876	.	.	.	.	.	2,198,000
1888	.	.	.	.	.	2,052,000

The endowments on which income-tax was refunded in 1888 were :—

					£
Hospitals	.	.	.	.	535,000
Almshouses, &c.	.	.	.	588,000
Schools	.	.	.	.	779,000
Religious purposes	.	.	.	150,000
	Total	.	.	.	2,052,000

The investment and income of endowments in 1876 showed :—

	Capital, £	Income, £
Real estate	31,100,000	1,558,000
Stocks	20,200,000	640,000
Total . . .	51,300,000	2,198,000

The real estate comprises 154,000 acres of land and some house property.

The above does not include Irish endowed charities, which had in 1876 an income of £270,000 per annum.

FRANCE

Hospital returns for 1864 and 1885 compare as follows :—

	Admitted		Average Days		Died		Deaths Per 100	
	1864	1885	1864	1885	1864	1885	1864	1885
Men . .	203,100	236,200	30	32	16,480	22,700	8.1	8.7
Women	81,300	124,400	35	38	10,430	14,700	12.8	10.5
Children	26,800	44,500	42	58	2,780	5,500	10.4	10.8
Total	311,200	405,100	32	36	29,690	42,900	9.5	9.5

The above hospitals in 1864 had a staff as follows :—

Physicians	.	.	.	.	2,348
Sisters of Charity	.	.	.	.	8,854
Servants, &c.	.	.	.	.	9,561
			Total	. . .	20,763

The expenditure was £2,320,000, say £7, 10s. per patient ; the income was £2,480,000, leaving a surplus of £160,000.

In 1845 France had 9244 charitable institutions, with a gross annual outlay of £4,620,000, viz. :—

		£
1,138	hospitals	2,140,000
7,600	soup-kitchens . .	540,000
506	asylums	1,940,000
Total, 9,244	Total . . .	4,620,000

The summary of such institutions in 1881 and 1885 was as follows :—

	Beds			Finances	
	1881	1885		1881	1885
Hospitals .	71,900	73,900		£	£
Orphanages	17,200	16,700	Receipts	4,320,000	4,320,000
Asylums, &c.	77,300	79,400	Expenses	4,120,000	4,360,000
Total .	166,400	170,000			

Asylums and orphanages in 1885 showed as follows :—

	Asylums				Orphanages		
	Men	Women	Children	Total	Boys	Girls	Total
Admitted	28,200	30,100	7,200	65,500	34,900	31,700	66,600
Died . .	3,900	3,900	410	8,210	1,390	1,350	2,740
Death-rate }	13.8	13.0	5.7	12.5	4.0	4.5	4.2

The expenses of the orphanages were £680,000, being a little over £10 per child.

The statistics of soup-kitchens or relief offices showed thus :—

	1840	1881	1885
Number . . .	7,600	14,033	14,574
Persons assisted .	696,000	1,449,000	1,778,000
Expenditure, £. .	540,000	1,240,000	1,360,000

The sums received for soup-kitchens were £1,920,000 in 1881, and £2,080,000 in 1885. In the latter year £840,000 was distributed in food, £320,000 in money, and the management cost £200,000, or 15 per cent. of the annual outlay.

The number of hospitals and asylums in 1791 was 1224, and rose in 1869 to 1557, viz :—

For sick	.	.	.	.	415
For aged	.	.	.	.	291
For sick and aged .	.	.	851
Total	.	.	.	1,557

In 1876 the above institutions admitted 438,000 persons. A statement published in 1845 showed the amount of charitable bequests as follows :—

Period	To Hospitals	To Clergy	To Convents, &c.	Total
	£	£	£	£
1801–14	600,000	7,000	8,000	615,000
1815–29	2,040,000	72,000	780,000	2,892,000
1830–45	2,260,000	112,000	232,000	2,604,000
45 years	4,900,000	191,000	1,020,000	6,111,000

In 1881 it was stated that the average number of charitable bequests yearly of all descriptions was 4200, averaging £290 each, say £1,220,000. Foundling hospitals were established at Paris by St. Vincent de Paul in 1642, the Government giving a subsidy of £120, which was raised in 1657 to 40,000 livres, or £1600 per annum. There was, however, a foundling hospital established at Lyons in 1526, which received in the eighteenth century about 1700 infants yearly. The statistics of the Paris Foundling House were :—

Admitted	1760	1860
Legitimate infants . .	735	594
Illegitimate infants . .	4,297	3,205
Total . . .	5,032	3,799

The statistics of Night Refuges and Foundling Asylums at Paris from 1876 to 1883 showed thus :—

Period	Annual Average	
	Night Refuge	Foundlings
1876–79 . . .	3,965	2,545
1880–83 . . .	6,660	2,865

Among the French charities are lying-in hospitals, where 68,000 confinements took place in 1876, at a cost to the State of only £17,000 ; besides dispensaries, which gave medicine the same year to 660,000 persons, at a cost of £224,000 for the year.

The hospitals of Paris, which admitted in 1813 only 32,000 patients, now admit 110,000 sick yearly, the deaths averaging 11,600 per annum, or 10½ per cent., against 12½ per cent. in the years 1861–62. Paris has at present :—

21 hospitals with 9,000 beds
13 asylums ,, 10,000 ,,

This is, of course, exclusive of lunatic asylums. The principal hospital is the Hotel Dieu, with 514 beds, which cost for building £1,600,000, say £3000 per bed, or ten times the ordinary cost.

ITALY

The endowed capital of charitable institutions in 1878 amounted to £65,040,000, belonging to 17,870 institutions, and yielding a gross revenue of £3,640,000, but a net income of only £1,880,000, distributed as follows :—

					£
Orphanages .	.	.	.	.	229,000
Marriage-portions .	.	.	.	192,000
Alms to indigent	.	.	.	.	440,000
Alms to sick poor .	.	.	.	120,000
Hospitals, prisons, &c. .	.	.	899,000
Total	.	.	1,880,000

Charitable bequests average £124,000 per annum. The principal hospital at Rome is Santo Spirito, which admitted in 1871–76 an average of 22.600 patients yearly, of whom only 6 per cent. died. The death-rate from July to October was only 3½ per cent. of patients admitted, but in the rest of the year over 9 per cent. The annual death-rate from 1861–70 averaged 8½ per cent. In 1878 there were 102 foundling asylums, with endowed property yielding £65,000 yearly; they admit 40,000 infants yearly.

AUSTRIA

The hospitals of Austria proper in 1886 were as follows :—

	No.	Beds	Admitted	Died	Death-Rate	Average Days
Public .	176	21,830	220,000	21,980	10.0	26
Private	381	10,660	75,000	7,370	9.8	25
Total	557	32,490	295,000	29,350	9.9	26

The public charitable institutions in 1886 summed up thus :—

	Admitted	Cost, £	Per Patient, £
Hospitals	220,000	360,000	1.6
Lying-in hospitals .	16,000	32,000	2.0
Foundling houses . .	43,000	160,000	3.9
Asylums for old . .	37,690	205,000	5.2
Soup-kitchens . .	228,950	360,000	1.6
Orphanages . . .	124,030	...	...

The following table shows the number of these institutions, and the numbers admitted according to sex :—

	Institutes	Males	Females	Total Entries
Orphanages .	1,024	64,850	59,180	124,030
Aged persons .	1,579	16,460	21,230	37,690
Soup-kitchens .	10,645	111,940	117,010	228,950

The lying-in hospitals had 1557 beds, and admitted 16,605 women for confinement, who gave birth to 15,015 infants; average of days for each woman under treatment, 18; average number of beds occupied, 820; average cost, 27 pence daily per mother. The number of deaths was :—

		Per 100
Mothers	155	0.9
Infants	911	6.1

The foundling houses admitted during the year 42,870 children, three-fourths being at once put out to nurse. The year's returns showed :—

	Infants	Died	Death-Rate
In-door . . .	9,740	653	6.7
Out-door . . .	33,130	4,962	15.0
Total . .	42,870	5,615	13.5

The asylums for aged and infirm showed an average expenditure of sevenpence per head daily.

The only returns published for Hungary are those of orphanages and asylums for 1886, viz. :—

	Males	Females	Total	Cost, £	Per Head, £
Orphanages	1,015	1,581	2,596	23,000	9.0
Asylums .	1,443	2,060	3,503	31,000	9.0
Total .	2,458	3,641	6,099	54,000	9.0

Belgium in 1889 had 190,000 acres of land belonging to hospitals and similar institutions. Charitable bequests were as follows :—

Year						No.	Amount, £
1882	.	.	.	.	.	603	188,000
1887	.	.	.	.	.	926	105,000

The orphanages in 1887 contained 490 boys, 1213 girls—in all 1703, against 3473 in 1875, a decline of 50 per cent.

Norway has 44 hospitals, admitting yearly 8400 sick, of whom 12 per cent. die.

Brazil possesses the Misericordia Hospital of Rio Janeiro, one of the largest in the world. The returns for 1861–72 showed per annum :—

	Admitted	Died	Per Cent.
Sick	12,698	2,090	16.7
Insane . . .	425	53	12.7
Foundlings . .	601	296	48.5
Total .	13,724	2,439	17.8

The New York hospitals in 1882 showed thus :—

	Revenues			Patients
Subsidies .	£34,000	Free . . .		6,945
Pay patients .	16,000	Pay . . .		2,220
Donations .	38,000	Total .		9,165
Receipts .	£88,000	Days free . .		262,000
Expenditure .	£92,000	Total days . .		368,000

The average was 37 days to each free, and 48 to each paying, patient, and the cost in general £10 per patient, or 5s. per day.

CHEESE

Two analyses are given of the various kinds :—

	Chester	Parma	Brie	Dutch	Gruyère
Water . .	30.4	30.3	34.0	41.4	32.1
Nitrogen .	8.0	7.9	5.1	7.0	8.0
Fat . . .	36.6	31.1	53.3	42.8	41.8
Various . .	25.0	30.7	7.6	8.8	18.1
Total .	100.0	100.0	100.0	100.0	100.0

	Chester	Parma	Brie	Dutch	Gruyère	Camembert	Roquefort	Neufchâtel
Water . .	35.9	27.6	45.3	36.1	40.0	51.9	35.6	36.6
Azote . .	4.1	7.0	2.9	4.8	5.0	3.0	4.2	1.3
Fat . . .	26.3	16.0	25.7	27.5	24.0	21.1	30.1	40.7
Salt . .	4.2	5.7	5.6	6.9	3.0	4.7	5.1	0.5
Sundry . .	29.5	43.7	20.5	24.7	28.0	19.3	25.0	20.9
Total . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The value of cheese produced yearly by a good cow is estimated in Canada at £7, in Parma at £10, in Neufchatel at £14, and at Camembert (France) at £36 sterling. The quantity produced annually in the United Kingdom is probably about 40,000 tons, or one-third of the consumption, the importation reaching 82,000 tons yearly. See *Dairy*.

CHURCH

The following table shows the number of churches and clergy in various countries (1880–82) :—

	Churches	Clergy	Number of Inhabitants to each Clergyman
England . . .	35,916	41,320	610
Ireland . . .	4,540	4,110	1,270
France . . .	39,314	42,543	900
Germany . . .	37,720	31,910	1,420
Austria . . .	36,180	55,240	700
Russia . . .	42,670	49,330	1,700
Italy	22,260	40,150	750
Spain	18,600	42,765	400
United States . .	92,167	77,230	630
Australia . . .	6,013	2,155	1,300

There are 126 Protestant bishops in the British Empire, viz. :—

	Arch-bishops	Bishops	Total
England . . .	2	32	34
Scotland . . .	...	7	7
Ireland	2	10	12
Colonies . . .	...	73	73
Total .	4	122	126

The income of English bishops ranges from £3000 upwards, the Archbishop of Canterbury having £15,000 a year.

Since the report published in 1835, the English bishops have been increased from 27 to 34, the Irish reduced from 16 to 12.

There are 1263 bishops of the Roman Catholic Church, of whom 130 hold sees in the British Empire :—

	Arch-bishops	Bishops	Total
United Kingdom . .	7	42	49
France	17	69	86
Germany . . .	5	23	28
Russia	2	13	15
Austria	19	51	70
Italy	50	218	268
Spain	9	45	54
Portugal . . .	3	15	18
Belgium and Holland .	2	10	12
Switzerland . . .	...	6	6
Greece	3	6	9
Turkey	3	12	15
Europe . . .	120	510	630
United States . .	12	52	64
Spanish America . .	16	79	95
British America . .	5	25	30
Australia	2	16	18
India	2	22	24
Armenia, Persia, &c. .	27	47	74
Various missions . .	...	328	328
Total .	184	1,079	1,263

There are 901 bishops holding Sees in communion with Rome, besides 362 acting as vicars-apostolic on missions.

Rite	Archbishops	Bishops	Total
Latin . . .	151	674	825
Greek, Armenian, &c.	33	43	76
Total . .	184	717	901

UNITED KINGDOM

The report of 1835 regarding the Established Church was as follows :—

	Clergy, Number			Net Tithes, £		
	England	Ireland	Total	England	Ireland	Total
Rectors . . .	10,718	1,395	12,113	3,055,000	520,000	3,575,000
Vicars . . .	4,813	833	5,646			
Canons . . .	733	426	1,159	435,000	214,000	649,000
Bishops . . .	27	16	43			
Total . . .	16,291	2,670	18,961	3,490,000	734,000	4,224,000

The patronage of the various livings was as follows :—

Nominated by	England	Ireland	Total
Crown	952	131	1,083
Noblemen . . .	5,096	340	5,436
Bishops, &c. . .	4,694	924	5,618
Total . .	10,742	1,395	12,137

In 1850 the income of the Established Church of England and Wales was as follows :—

	Number	Income	Average
		£	£
Clergy	10,478	3,005,000	285
Bishops . . .	27	160,000	6,000
Chapters . . .	...	253,000	...
Total . .	...	3,418,000	...

Income		Clergy, No.
Under £100		1,926
100–200		2,956
200–500		4,135
Over 500		1,461
Total . . .		10,478

A report published in 1880 upon the income of the Established Church in England and Wales, was as follows :—

	£
Tithes	4,054,000
Committee grants . . .	776,000
Other sources . . .	973,000
Total . . .	5,803,000

The above, however, includes £962,000 of tithes that go to laymen, which leaves the real church income at £4,841,000, distributed as follows :—

Clergy			Number	Income	Per Head
				£	£
Bishops .	.	.	33	168,000	5,100
Canons .	.	.	166	240,000	1,440
Rectors .	.	.	11,780	3,830,000	330
Curates .	.	.	5,050	565,000	120
Total	.	.	17,029	4,803,000	...

Besides the above there is an offertory which has been found to range from £100 to £240 a year, and is supposed to average £120, that is £2,220,000.

At the same time the patronage of livings was as follows :—

Proprietor					No.
Crown	.	.	.	.	967
Noblemen .	.	.	.	.	5,357
Bishops	.	.	.	.	2,088
Various	.	.	.	.	4,476
Total	.	.	.	.	12,888

The Ecclesiastical Report for 1880 shows that in 40 years the Commissioners expended 22½ millions in creating new endowments to an annual value of £746,000 in aid of 4700 distressed parishes, say £160 each. The Commissioners distribute about £700,000 a year in creating new benefices, to an average amount of £23,000 per annum. Balance still in hand, £8,200,000. The above tables do not include collegiate endowments, worth £550,000 a year. Total clergy of Church of England, 19,000, including 2000 schoolmasters. The Church of England has, moreover, 232 clergymen in Scotland, 820 in Ireland, and 2700 in colonies and foreign countries, making a grand total of 22,752.

The official statement of the Anglican Church in Ireland in 1880 was :—

Number of clergy	.	.	820	Donations . .	£118,000
Number of laity .	.	635,100	Total income .	£248,000
Endowment .	.	£130,000	Endowed capital	£3,260,000

There are 12 bishops who receive £41,500 per annum, average £3600 each.

In November 1880 the residue of property formerly belonging to the Protestant Church in Ireland was valued at 12 millions, producing a revenue of £574,000, to be devoted to purposes of general utility or beneficence. In 1889 all had been disposed of, except a surplus of £27,000 per annum.

The Presbyterian Church in Ireland comprises 553 chapels, with an income of £168,000, of which £102,000 goes to the pastors.

In a report on the Established Church of Scotland in 1890, the annual income was shown as follows :—

Period	£	Period	£
1851–60 . . .	208,000	1871–80 . . .	515,000
1861–70 . . .	371,000	1881–90 . . .	607,000

The number of churches in England and Wales in 1883 was :—

Church of England .	14,573	Quaker	375
Methodist	11,514	Presbyterian . . .	201
Independent . . .	2,603	Jewish	60
Baptist	2,243	Various	2,628
Calvinist . . .	895		
Roman Catholic . .	824	Total . .	35,916

In the above are not included 364 Roman Catholic chapels attached to religious houses, possessing no marriage licence.

In 1882 the Roman Catholic Church in the British Empire stood thus :—

	Bishops	Priests	Churches	Laity
England . . .	15	2,112	1,188	1,066,000
Scotland . . .	6	306	295	318,000
Ireland	28	3,290	2,760	3,952,000
Canada	24	1,210	1,050	2,150,000
Australia . . .	16	376	787	584,000
India	22	1,179	...	1,318,000
Other colonies .	20	315	240	466,000
Total . .	131	8,788	6,520	9,854,000

The average income in the United Kingdom is £400 for a bishop, and £80 for a priest. In India it is £260 per bishop, and £36 per priest. In Canada and Australia it is higher than in England.

UNITED STATES

The Census of 1880, and the estimates of numbers of congregations from that of pews, showed as follows :—

	Churches	Ministers	Laity	Property, 1870
				£
Baptist	24,794	15,401	8,532,000	8,400,000
Methodist . . .	28,281	16,759	10,944,000	14,100,000
Presbyterian . .	10,474	8,026	3,564,000	10,600,000
Roman Catholic .	5,975	6,366	6,371,000	12,200,000
Lutheran . . .	5,556	3,102	2,740,000	1,200,000
Christian Discip.	4,681	3,658	2,268,000	1,200,000
Congregational .	3,689	3,589	1,334,000	5,100,000
Episcopal . . .	3,104	3,564	1,412,000	7,200,000
United Brethren .	2,573	2,563	1,196,000	400,000
Unitarians . . .	342	394	172,000	1,200,000
Quakers . . .	621	876	272,000	800,000
Jews	269	202	70,000	1,000,000
Mormons . . .	654	3,906	440,000	200,000
Various . . .	1,154	8,824	10,841,000	7,200,000
Total . .	92,167	77,230	50,156,000	70,800,000

At the opening of the Washington Catholic University in October 1889, Cardinal Gibbons stated that in 1789 (when Dr. O'Carroll was consecrated first bishop) the total number of Catholics was only 40,000, and that they are now about 9,000,000, with 84 bishops, 8000 priests, 10,500 churches, 520 hospitals and orphan asylums, 677 colleges, and 3100 schools.

FRANCE

The official statistics in 1880 were as follows :—

Clergy of all ranks .	.	.	.	55,400
Sisters of charity, &c.	.	.	.	125,400
Church endowed incomes	.	.	£190,000
Schools, convents, asylums	.	.	£800,000

The capital value of endowments for churches, schools, and asylums amounted in 1880 to £23,300,000. The annual State subsidy is £1,740,000, equal to 1s. per inhabitant, or £40 a year for each priest. The ordinary income of a curé is £80.

Official returns show the number of clergy and of young men ordained priests yearly as follows :—

Year				Clergy	Ordained during Year
1861	.	.	.	54,400	1,206
1880	.	.	.	55,400	1,541
1885	.	.	.	54,500	1,527

This would show that a priest's life averages 36 years from ordination, or a life span of about 63 years.

ITALY

The Italian Government confiscated properties worth 55 millions sterling, of which nearly half has been sold, viz. :—

	Capital, £	Income, £
Sold (1868–80)	21,200,000	1,450,000
Held by State	33,900,000	1,240,000
Total	55,100,000	2,690,000

Out of the above income the Italian Government pays £428,000 per annum to 32,590 monks and nuns, say £13 each. The Pope has always refused the allowance of £120,000 a year offered him, and is maintained by Peter's pence from all nations.

The amount of Peter's pence in 1889 was said to be as follows :—

	£					£
Austria	16,000		Ireland	.	.	6,000
Italy	14,200		Portugal	.	.	6,000
France	12,800		Asia	.	.	4,000
South America	12,400		Roumania	.	.	4,000
Spain	8,000		England	.	.	3,800
North America	7,400		Africa	.	.	3,800
Germany	7,200		Poland	.	.	3,400
Belgium	6,200		Switzerland	.	.	2,200

Besides other countries, the whole amounting to £120,000 sterling.

The Vatican records show that there have been 257 Popes, the longest reign being that of Pius IX., who sat for 32 years, the average being 7½ years. The table of duration shows thus :—

Over 20 years	.	. 11	5–10 years . .	. 57
10–20 ,,	.	. 69	Under 5 years .	. 120

The nationality of the various Popes has been as follows :—

English	.	.	. 1	Spanish	.	.	.	5
Dutch	.	.	. 1	German	.	.	.	6
Swiss	.	.	. 1	Syrian	.	.	.	8
Portuguese	.	.	. 1	Greek	.	.	.	14
African	.	.	. 2	French	.	.	.	15
Austrian	.	.	. 2	Italian	.	.	.	201

The number of parochial clergy in Italy is 20,067, of whom 2236 have less than £30 a year income.

AUSTRIA.

There are 98 Roman Catholic bishops, and the Church forests and other properties are valued at 19 millions sterling. Total Church revenue, £1,890,100, the highest income being £30,000 per annum to the Archbishop of Olmutz. Priests average £30 a year.

The latest returns of the clergy show thus :—

	Austria	Hungary	Total
Latin priests	15,026	4,206	19,232
Roman Catholic Greek priests	2,110	2,128	4,238
Russian Greek priests .	446	2,900	3,346
Protestant clergy . .	232	3,602	3,834
Jewish pastors . .	...	740	...
Total . . .	17,814	13,576	31,390

GERMANY.

In 1849 the churches and pastors in Prussia were :—

	Churches	Pastors
Protestant . . .	9,001	6,139
Roman Catholic . . .	7,238	5,605
Jewish	901	..
Total . . .	17,140	11,744

In 1880 the Census showed for all Germany as follows :—

Churches	37,720
Clergy	31,910

The Protestant Church will probably stand for about 18,000 clergy and 20,000 churches, the Roman Catholic about 12,000 clergy and 15,000 churches : there are 28 Catholic bishops, including 5 archbishops.

RUSSIA

According to Government reports published in 1880, we find :—

Bishops	40	Convents	550
Parish priests . .	49,200	Churches	35,400

The State subsidy is £800,000 per annum, besides which the Church lands give a revenue of £17 to each priest.

In 1801 Russia had 18,300 parish churches, 67,700 clergy, and 554 convents and monasteries, containing 7300 monks and 1300 nuns.

In 1839 there were 29,500 churches of all denominations, with :—

					Clergy
Greek	.	.	.	.	52,300
Roman Catholic	.	.	.	.	10,330
Protestant	.	.	.	.	1,050
Total	.	.	.	.	63,680

Besides 63,000 deacons and assistants of the Greek Church.

BELGIUM

Church properties cover 60,000 acres ; there are 6 bishops, and 5428 churches, being a church for 1100 inhabitants, besides 1560 convents.

HOLLAND

The latest returns show as follows :—

	Churches	Clergy
Protestant . , .	2,001	2,125
Roman Catholic . .	1,022	2,371
Jews . . .	182	137
Total . . .	3,205	4,633

SPAIN.

There are 54 bishops, 32,400 priests, 1680 monks, 14,600 nuns, 18,600 churches, including 65 cathedrals.

AUSTRALIA

The condition of the various creeds in 1881 was as follows :—

	Churches	Ministers	Laity	Churches per 100,000 Inhabitants
Church of England . .	1,398	659	1,070,000	142
Roman Catholics . .	791	378	615,000	136
Methodists	1,608	359	301,000	402
Presbyterians . . .	1,046	370	374,000	285
Various	1,170	389	382,000	218
Total . .	6,013	2,155	2,742,000	210

	Churches	Ministers	Sunday Schools
New South Wales . .	1,330	706	1,285
Victoria	2,843	759	1,557
South Australia . . .	725	165	570
New Zealand . . .	553	277	360
Queensland	172	76	100
Tasmania	319	139	112
West Australia . . .	71	33	40
Total . .	6,013	2,155	4,024

CITIES

	Population (1000)	Births	Deaths	Increase	Mean Annual Temperature		Population (1000)	Births	Deaths	Increase	Mean Annual Temperature
Alexandria	232	45.0	34.2	10.8	69.0	Lisbon	244	...	...	...	60.4
Algiers	62	...	30.1	...	64.3	Liverpool	600	37.6	26.7	10.9	50.8
Amsterdam	372	36.7	23.7	13.0	49.9	London	4,280	34.7	21.2	13.5	50.8
Antwerp	205	...	24.7	...	...	Lyons	402	26.0	24.7	1.3	53.0
Baltimore	332	...	21.1	...	54.9	Madras	398	39.0	38.8	0.2	81.9
Barcelona	260	29.2	...	...	61.0	Madrid	396	37.5	37.4	0.1	56.2
Belfast	185	...	28.2	...	52.1	Manchester	604	36.9	25.5	11.4	48.8
Berlin	1,438	37.5	27.6	9.9	48.2	Manilla	270	...	...	...	78.4
Birmingham	448	37.6	19.8	17.8	48.2	Marseilles	360	...	28.0	...	57.3
Bombay	773	25.6	33.7	...	80.3	Melbourne	458	...	...	...	58.0
Bordeaux	241	...	26.7	...	57.0	Mexico	212	...	30.9	...	60.9
Boston	363	30.0	23.5	6.5	48.4	Milan	321	...	30.6	...	55.1
Boulogne	123	...	...	...	54.4	Montreal	177	...	37.0	...	44.6
Bradford	184	33.1	21.1	12.0	...	Moscow	753	...	...	...	41.0
Breslau	273	37.7	32.5	5.2	46.7	Munich	280	39.5	32.8	6.7	48.4
Brighton	108	30.6	19.0	11.6	...	Naples	491	32.0	33.1	...	60.3
Bristol	297	34.5	19.6	14.9	51.7	Newcastle	145	36.8	21.8	15.0	...
Brussels	463	34.7	23.9	10.8	50.7	New Orleans	216	...	22.7	...	69.1
Bucharest	222	29.5	24.5	5.0	46.4	New York	1,443	34.6	26.2	8.4	51.8
Buda-Pesth	443	35.8	35.2	0.6	51.0	Nottingham	187	36.7	22.4	14.3	...
Buenos Ayres	455	31.7	30.1	1.6	62.8	Oldham	115	35.4	22.8	12.6	...
Cairo	375	...	...	...	71.2	Palermo	245	...	28.5	...	63.1
Calcutta	429	...	31.1	...	78.4	Paris	2,269	30.5	28.6	1.9	51.3
Chicago	503	...	20.2	...	45.9	Philadelphia	1,017	30.0	20.5	9.5	52.1
Christiania	136	34.5	18.8	15.7	41.5	Portsmouth	128	34.4	19.7	14.7	...
Cincinnati	256	...	20.2	...	54.7	Quebec	70	...	22.9	...	40.3
Constantinople	819	...	...	...	56.5	Quito	84	...	...	...	60.9
Copenhagen	235	39.1	22.1	17.0	46.6	Rio Janeiro	356	35.5	39.4	...	74.2
Dresden	259	35.4	25.4	10.0	49.1	Rome	388	27.2	26.8	0.4	60.5
Dublin	350	29.1	27.1	2.0	50.1	Rotterdam	194	38.8	23.3	15.5	51.0
Edinburgh	263	32.2	20.2	12.0	47.1	Rouen	106	...	31.3	...	...
Florence	168	...	...	...	59.2	St. Louis	351	30.0	19.3	10.7	55.0
Frankfort	138	...	...	...	49.6	St. Petersburg	843	37.8	51.4	...	39.6
Geneva	69	24.3	21.2	3.1	47.7	San Francisco	234	...	18.1	...	55.2
Genoa	179	...	...	...	61.1	Sheffield	284	38.0	21.6	16.4	...
Glasgow	512	37.4	25.3	12.1	49.8	Stockholm	222	33.0	24.7	8.3	42.3
Hague	118	39.7	23.3	16.4	52.0	Sunderland	117	39.3	20.9	18.4	...
Hamburg	454	37.5	24.5	13.0	47.0	Sydney	382	...	...	...	62.8
Havanna	230	25.4	45.7	...	78.1	Tunis	210	...	...	...	68.8
Hull	155	36.4	23.8	12.6	...	Turin	241	31.5	25.6	5.9	53.1
Jerusalem	28	...	...	...	62.6	Valparaiso	101	...	64.6	...	58.0
Leeds	310	36.8	21.6	15.2	...	Venice	152	30.2	22.7	7.5	55.4
Leicester	123	38.4	21.8	16.6	...	Vienna	801	39.2	29.0	...	51.0
Leipsic	169	...	26.1	...	46.4	Warsaw	432	...	...	...	44.2
Lima	130	...	...	...	73.3	Washington	147	...	22.9	...	56.2

The density of population of some cities is shown in the following table :—

	Acres, Area	Inhabitants per Acre
London	76,600	51
Paris	19,500	115
Berlin	16,200	70
Vienna	13,700	55
Florence	10,500	16
Genoa	7,900	22
Dresden	7,200	31
Buda-Pesth	6,500	55
Milan	5,500	60
Turin	4,200	58

CIVIL SERVICE

In the United Kingdom there are 29,000 persons, with an aggregate salary of £4,000,000, say £130 each.

CLANS

For the Pretender in 1715 :—

Appin	300		Marshall	500
Breadalbane	2,000		Marr	1,000
Caithness	500		Montrose	2,000
Cameron	1,000		Murray	300
Carnworth	300		Nairn	1,000
Clanronald	1,000		Nithsdale	300
Glencoe	300		Ogilvy	500
Glengary	500		Panmure	500
Glenmoristan	100		Perth	1,500
Gordon	300		Robertson	500
Hume	500		Seaforth	3,000
Kenmore	500		Southesk	300
Keppoch	300		Stormont	300
Linlithgow	300		Straglas	100
Lovat	800		Strathmore	300
M'Donald	1,000		Tullibardine	6,000
M'Gregor	500		Wigtown	300
M'Intosh	1,000		Wintoun	300
M'Lean	1,000			
M'Pherson	500		Total	31,700

For King George :—

Annandale	. .	500	Dundonald	. .	300	Kilmarnock	. .	300	Ross . . . 500
Argyle	. .	4,000	Eglinton .	. .	300	Lauderdale	. .	300	Rothes . . . 500
Buccleuch	. .	1,000	Forbes .	. .	500	M'Leod .	. .	1,000	Roxburgh . . 500
Cassils	. .	500	Glencairn .	. .	300	M'Neil .	. .	120	Sutherland . . 1,000
Douglas .	. .	500	Grant .	. .	1,000	Morton .	. .	300	Weems . . . 300
Dumfries .	. .	200	Hamilton .	. .	1,000	Rae .	. .	500	

Total . 15,420

COAL

The total production of coal in the nineteenth century has been approximately as follows :—

Period		Millions of Tons													
		Great Britain	France	Germany	Russia	Belgium	Austria	United States	Spain	Canada	Australia	India	Japan	Various	Total
1801–20	. . .	210	18	25	...	8	3	5	...	...	...	...	...	8	277
1821–40	. . .	390	41	48	...	47	8	13	...	...	...	...	...	19	566
1841–50	. . .	420	41	47	...	51	14	44	...	...	...	...	...	20	637
1851–60	. . .	650	69	122	...	82	24	110	1	...	2	3	...	30	1,093
1861–70	. . .	970	117	277	3	120	70	260	3	5	7	5	1	35	1,873
1871–80	. . .	1,305	170	481	19	153	135	510	6	10	14	8	7	37	2,855
1881–89	. . .	1,461	190	662	37	160	184	970	10	17	30	12	12	40	3,785
89 years	. . .	5,406	646	1,662	59	621	438	1,912	20	32	53	28	20	189	11,086

Period		Value, Million £ Sterling													
		Great Britain	France	Germany	Russia	Belgium	Austria	United States	Spain	Canada	Australia	India	Japan	Various	Total
1801–20	. . .	105	11	10	...	4	1	2	...	...	...	...	...	3	136
1821–40	. . .	175	23	18	...	19	3	5	...	...	...	...	...	7	250
1841–50	. . .	168	21	16	...	18	5	18	...	...	...	...	...	7	253
1851–60	. . .	228	31	34	...	33	7	40	...	...	1	1	...	10	385
1861–70	. . .	370	53	75	1	53	18	91	1	2	3	2	...	12	681
1871–80	. . .	600	89	121	6	64	27	167	2	3	8	3	2	12	1,104
1881–89	. . .	482	85	165	12	59	31	333	3	6	13	4	4	12	1,209
89 years	. . .	2,128	313	439	19	250	92	656	6	11	25	10	6	63	4,018

The following table shows approximately the production and consumption in several countries at various dates :—

Year	Production, Tons							
	Great Britain	France	Germany	United States	Belgium	Austria	Various	The World
1800 . . .	10,100,000	800,000	300,000	200,000	...	...	200,000	11,600,000
1820 . . .	12,500,000	1,200,000	1,500,000	500,000	1,000,000	...	500,000	17,200,000
1840 . . .	30,000,000	3,300,000	3,400,000	1,800,000	3,900,000	400,000	2,000,000	44,800,000
1850 . . .	49,000,000	4,400,000	6,700,000	8,000,000	5,800,000	2,000,000	5,500,000	81,400,000
1860 . . .	82,000,000	8,300,000	16,700,000	15,200,000	9,600,000	3,500,000	7,000,000	142,300,000
1870 . . .	110,000,000	13,300,000	34,000,000	32,900,000	13,700,000	9,500,000	9,000,000	213,400,000
1880 . . .	147,000,000	19,400,000	59,100,000	70,500,000	16,900,000	16,100,000	11,000,000	340,000,000
1889 , . .	177,000,000	24,600,000	84,900,000	142,000,000	19,800,000	24,000,000	12,700,000	485,000,000

Year	Consumption, Tons					
	Great Britain	France	Germany	United States	Belgium	Austria
1830	15,500,000	2,700,000	2,500,000	1,300,000	2,000,000	300,000
1840	29,000,000	4,800,000	3,400,000	1,800,000	3,500,000	400,000
1850	46,000,000	9,300,000	6,000,000	8,000,000	4,500,000	2,000,000
1860	75,000,000	14,300,000	15,000,000	15,500,000	6,100,000	3,700,000
1870	98,000,000	18,800,000	30,000,000	33,000,000	10,500,000	10,000,000
1880	128,000,000	28,800,000	52,000,000	72,000,000	11,500,000	14,500,000
1889	148,000,000	34,600,000	75,000,000	143,000,000	14,300,000	22,000,000

The average consumption yearly per inhabitant was approximately as follows :—

	Cwts. per Inhabitant		
	1830	1850	1888
United Kingdom . .	13	33	72
United States . .	2	7	40
Germany . . .	1	4	28
France . . .	2	5	16
Belgium . . .	10	18	48
Russia	...	...	2
Austria	...	2	11
Holland . . .	...	5	16
Spain	...	1	2
Italy	...	1	2
Sweden	...	1	6
Norway . . .	...	1	6
Denmark . . .	...	1	6
Switzerland . .	...	1	5
Europe . . .	2	5	18

Since 1830 the consumption in Europe of coal per inhabitant has multiplied ninefold.

This is caused partly by manufactures, partly by railways and steamboats, but it is expected that the use of electric power will in future supersede in some manner that of coal. Meantime the consumption of coal increases year by year.

In 1889 the coal used for making iron was approximately as follows :—

					Tons
Great Britain	.	.	•	.	17,400,000
United States	.	.	.	.	16,600,000
Germany	.	.	.	.	10,000,000
France, &c.	.	.	.	.	10,300,000
	Total	.	.	.	54,300,000

In 1885 the coal-mining industry of the world stood approximately as follows :—

	Million Tons Coal	Number of Miners	Tons per Miner	Value of Coal, £	Product per Miner, £
Great Britain .	160	485,000	330	53,700,000	111
United States .	104	300,000	347	41,600,000	139
Germany . .	74	220,000	336	17,200,000	78
France . . .	20	102,000	196	9,000,000	88
Belgium . . .	17	101,000	168	6,400,000	63
Austria . . .	20	73,000	270	4,200,000	57
Other countries	20	100,000	200	5,000,000	50
Total . .	415	1,381,000	300	137,100,000	99

The following table shows the extent and estimated contents of some of the coalfields of the world :—

	Square Miles	Tons
Great Britain . . .	9,000	90,000,000,000
France	1,800	...
Germany	3,600	39,000,000,000
Russia	27,000	10,000,000,000
Belgium, Spain, &c. .	1,400	...
United States . . .	194,000	...
India	35,000	14,000,000,000
China and Japan . .	200,000	150,000,000,000
Total . .	471,800	303,000,000,000

The contents, as estimated above, include nothing beyond a depth of 4000 feet, the deepest colliery at present working being that of Lambert in Belgium, 3500 feet. The deepest in the United Kingdom is the Rosebridge, 2500 feet. The above five coalfields contain apparently 303,000 millions of tons, which is enough for 700 years, at the present rate of consumption. If to the above be added the contents of coalfields in the United States, Canada, Australia, France, Spain, and Belgium, the supply will be found ample for 1000 years. Improved machinery has greatly increased the yield per miner, and thus produced a fall in price, to the advantage of all industries. The official returns of Great Britain, Belgium, and Austria show as follows :—

	1874			1885		
	Miners	Tons Raised	Tons per Miner	Miners	Tons Raised	Tons per Miner
Great Britain . . .	539,000	125,000,000	232	485,000	160,000,000	330
Belgium . . .	110,000	15,000,000	136	101,000	17,000,000	168
Austria	67,000	9,000,000	135	73,000	18,000,000	247

The number of tons raised per miner is greater in United States and Germany than in Great Britain. Three English miners, nevertheless, raise as much as five French, and the price of coal in France is always much higher than in England.

Current prices at pit's mouth were :—

Period	Pence per Ton					
	England	France	Belgium	Austria	Germany	United States
1871–75 . . .	87	190	168	78	108	114
1876–80 . . .	88	120	102	66	66	80
1881–85 . . .	72	108	90	60	63	100

It appears that 9 tons of Massachusetts have as much carbon as 10 tons of Newcastle (English) coal. The percentage of coke obtained is as follows :—

Westphalia . . 36 per cent.	Pennsylvania . 89 per cent.
Marseilles . . 41 ,,	Mayenne . . . 90 ,,
Lancashire . . 58 ,,	Wales . . . . 91 ,,

The specific gravity and percentage of carbon in different kinds of coal are shown thus :—

	Weight, Lbs. per Cubic Yd.	Percentage Carbon		Weight, Lbs. per Cubic Yd.	Percentage Carbon
Rhode Island . . .	3,054	86	Newcastle . . .	2,160	87
Massachusetts . . .	2,882	97	Peat	2,160	57
Pennsylvania . . .	2,715	89	Marseilles . . .	2,080	63
Mayenne (France) . .	2,293	91	Greek	2,020	60
Swansea	2,266	89	Westphalia . . .	1,840	63
Lancashire	2,240	83	Wood	1,100	50

UNITED KINGDOM

The production, consumption, and export since 1820 were as follows :—

Year	Tons			Year	Tons		
	Production	Consumption	Export		Production	Consumption	Export
1820	12,500,000	12,250,000	250,000	1860 . . .	82,000,000	75,000,000	7,000,000
1830	15,000,000	15,500,000	500,000	1870 . . .	110,000,000	98,000,000	12,000,000
1840	30,000,000	29,000,000	1,000,000	1880 . . .	147,000,000	128,000,000	19,000,000
1850	49,000,000	46,000,000	3,000,000	1889 . . .	177,000,000	148,000,000	29,000,000

Chisholm's tables of British coal exported in 35 years, ending 1889, show as follows :—

Period	Tons Exported to							
	France	Germany	Russia	Italy	Spain	Egypt	Various	Total
1855–60 . .	7,500,000	7,800,000	1,600,000	...	2,500,000	500,000	19,100,000	39,000,000
1861–70 . .	17,200,000	17,400,000	5,500,000	2,700,000	6,600,000	3,300,000	43,300,000	96,000,000
1871–80 . .	28,000,000	25,500,000	10,200,000	10,900,000	9,400,000	5,500,000	59,500,000	149,000,000
1881–89 . .	37,300,000	27,800,000	13,800,000	24,000,000	14,700,000	10,100,000	86,300,000	214,000,000
35 years . .	90,000,000	78,500,000	31,100,000	37,600,000	33,200,000	19,400,000	208,200,000	498,000,000

In the above table Holland is included with Germany, and Portugal with Spain. About one-sixth of the coal raised in Great Britain is exported.

The existing coal-fields of Great Britain in 1880 were as follows :—

	Million Tons	Contents of Field, Million Tons	Years of Supply
South Wales . .	15	32,000	2,150
Midland . . .	15	18,000	1,200
Northumberland .	16	10,000	620
Stafford . . .	15	6,000	400
Lancashire . .	22	5,000	230
Yorkshire, &c. .	46	9,000	196
Scotland . . .	18	10,000	550
Total . .	147	90,000	612

The output in the seventeenth century averaged 2,400,000 tons per annum ; in the eighteenth nearly 5,000,000.

The production in 1889 was 177 million tons, and the uses to which the coal was devoted were more or less thus :—

		Tons
Factories		55,000,000
Domestic use		40,000,000
Railways and steamers . . .		20,000,000
Gas and water works		20,000,000
Mines		13,000,000
Export		29,000,000
Total .		177,000,000

The price of coal in London since 1730 has averaged as follows :—

Period	Per Ton	Period	Per Ton
1730–50 . . .	£1 7 2	1841–50 . . .	£0 19 0
1751–99 . . .	1 14 9	1851–60 . . .	0 18 6
1800–20 . . .	2 13 3	1861–70 . . .	0 18 5
1820–30 . . .	1 12 0	1871–80 . . .	0 18 4
1831–40 . . .	1 4 0		

The price in England since 1782, at port of shipment, has averaged as follows :—

Period	Pence	Period	Pence
1782–1800	180	1861–1870	122
1801–1820	156	1871–1875	184
1821–1830	120	1876–1880	116
1851–1860	115	1881–1889	108

Loss of life by colliery explosions since 1851 shows thus :—

Period	Explo-sions	Killed	Annual Average		
			Killed	Tons, Output	Tons, per Killed
1851–71	1,437	4,977	238	82,000,000	344,000
1872–80	353	2,387	265	131,000,000	495,000
1881–89	211	1,361	151	160,000,000	1,060,000

FRANCE

The following table shows the production and consumption, as officially stated :—

Period	Tons per Annum			Cwts. per Inhabitant
	Produc-tion	Net Imports	Consump-tion	
1787–89	227,000	233,000	460,000	0.4
1802	844,000	91,000	935,000	0.7
1811–20	895,000	183,000	1,078,000	0.7
1821–30	1,490,000	438,000	1,928,000	1.3
1831–40	2,570,000	894,000	3,464,000	2.0
1841–50	4,100,000	2,048,000	6,148,000	3.5
1851–60	6,900,000	4,550,000	11,450,000	6.5
1861–70	11,700,000	6,800,000	18,500,000	10.0
1871–80	17,000,000	7,700,000	24,700,000	13.5
1881–86	19,200,000	9,800,000	29,000,000	15.5
1889	24,600,000	10,000,000	34,600,000	18.0

The first colliery in France was opened in 1722 ; the number working in 1835 was 223, employing 19,000 miners, and steam-engines representing 6000 horse-power. The French collieries in 1879 gave :—

	Amount	Per Ton		
	£	£	s.	d.
Wages	4,040,000	0	4	8
Other expenses . . .	3,320,000	0	3	11
Net profit	1,480,000	0	1	9
Value .	8,840,000	0	10	4

The most productive mines in the returns of 1842 and 1864 were :—

Mines	Tons	
	1842	1864
Valenciennes	907,000	3,120,000
St. Etienne	1,290,000	2,950,000
Calais	290,000	1,170,000
Creuzot	230,000	680,000
Others	483,000	2,880,000
Total . .	3,200,000	10,800,000

In 1888 there were 100,100 miners, average wages 3s. a day, who raised in twelve months 22,500,000 or 225 tons each, value 9s. a ton. There were 163 collieries that paid dividends, and 129 were worked at a loss. The Pas de Calais mines yielded 12,200,000 tons, or more than half the total.

GERMANY

The production of the last forty years may be summed up thus :—

Period	Millions of Tons		
	Coal	Lignite	Total
1850–59 . . .	88	27	115
1860–69 . . .	200	61	261
1870–79 . . .	356	100	456
1880–89 . . .	570	148	718
40 years . . .	1,214	336	1,550

According to "Engineering," Prussia has two coal-beds containing 100,000 millions of tons; other estimates say 59,000 millions, but even the latter would suffice all Germany for 450 years.

RUSSIA

The production has grown tenfold in twenty years, viz. :—

Year		Tons
1866		390,000
1876		2,050,000
1887		4,450,000

The principal coalfields are :—

		Tons
Don		2,000,000
Kielo, Poland . . .		2,000,000
Moscow.		450,000
Total . . .		4,450,000

There are about 32,000 miners employed.

INDIA

The coalfields cover 35,000 square miles, or four times the area of those of the United Kingdom, but have less cubic capacity, as they are estimated to contain only 14,000 million of tons, or one-sixth of those of Great Britain. In fact, their contents would only last the British consumption for eighty years. The product of the Indian coalfields is increasing. In 1860 it was 390,000 tons, rising to 760,000 in 1880, and 1,800,000 in 1890.

CANADA

The official handbook gives the production thus :—

Year	Tons		
	Nova Scotia	British Columbia	Total
1874	980,000	80,000	1,060,000
1880	1,160,000	270,000	1,430,000
1886	1,680,000	330,000	2,010,000

Canada imports yearly 2,100,000 tons; the consumption therefore reaches 4,100,000 tons, equal to 16 cwts. per inhabitant. Professor Dana says the Nova Scotia coal-bed has an area of 18,000 square miles.

AUSTRALIA

Coal was discovered in 1847, and the production has been :—

Year	New South Wales	New Zealand	Total
1860.	370,000	...	370,000
1870.	870,000	...	870,000
1880.	1,450,000	300,000	1,750,000
1888.	3,200,000	620,000	3,820,000

The total quantity raised has been approximately thus :—

Period	New South Wales	New Zealand	Total
1847–60 . . .	2,020,000	...	2,020,000
1861–70 . . .	6,700,000	...	6,700,000
1871–80 . . .	13,100,000	700,000	13,800,000
1881–88 . . .	21,330,000	3,900,000	25,230,000
42 years . . .	43,150,000	4,600,000	47,750,000

Small quantities have also been raised in Queensland and Tasmania. The total value of coal raised in forty-two years, according to Mr. Coghlan, was :—

		£
New South Wales		22,320,000
New Zealand		2,670,000
Queensland		900,000
Tasmania		180,000
Total . . .		26,070,000

The returns for 1888 were as follows :—

	Miners	Tons Raised	Value, £	Tons per Miner
New South Wales	9,300	3,200,000	1,460,000	344
New Zealand . .	1,750	610,000	340,000	348
Queensland, &c..	750	360,000	140,000	480
Total . .	11,800	4,170,000	1,940,000	355

The average pay per miner in New South Wales was £85 per annum, or 43 pence per ton of coal raised.

UNITED STATES

Coal was first discovered in 1768 in Rhode Island and Pennsylvania. Mining was commenced at Pittsburg in 1784, and in Rhode Island in 1808, both seams being anthracite. In the course of a few years the industry became of such importance that by 1850 Pennsylvania had already constructed 7 canals and 27 railways expressly for carrying coal. In 1840 the output was as follows :—

		Tons
Pennsylvania		1,300,000
Virginia		400,000
Rhode Island, &c. . . .		100,000
Total . .		1,800,000

In that year the number of miners engaged was 7000, showing an average of 260 tons per man. The production increased very rapidly, but was hardly sufficient for requirements, the Union always importing some coal from

Europe. The production, according to Census returns, compares thus with population :—

Year	Tons	Cwts. per Inhabitant
1840	1,800,000	2.1
1850	8,000,000	7.0
1860	15,200,000	9.5
1870	32,900,000	17.5
1880	70,500,000	28.0
1888	142,000,000	44.0

The production in 1888 was as follows :—

	Tons		
	Anthracite	Bituminous	Total
Pennsylvania . .	43,900,000	33,800,000	77,700,000
Illinois	...	14,700,000	14,700,000
Ohio	...	10,900,000	10,900,000
West Virginia .	...	5,500,000	5,500,000
Various . . .	...	33,200,000	33,200,000
Total . .	43,900,000	98,100,000	142,000,000

The estimated area of the principal fields is :—

Professor Dana		Census Report	
Bed	Sq. Miles	Bed	Sq. Miles
Alleghany . . .	59,000	Missouri . . .	27,000
Illinois	47,000	Illinois . . .	37,000
Missouri . . .	78,000	Kansas . . .	22,000
Michigan . . .	7,000	Various . . .	109,400
Total . .	191,000	Total . .	195,400

COCOA

Year	Consumption in United Kingdom			
	Lbs.	Duty, per Lb.	Price, per Lb.	Consumption, Oz. per Inhab.
		Pence	Pence	
1831 . .	440,000	6	9	¼
1841 . .	1,220,000	2	7	¾
1851 . .	5,310,000	2	5	3
1861 . .	4,520,000	1	6	2½
1871 . .	7,252,000	1	5½	4
1881 . .	10,885,000	1	8	5
1888 . .	18,200,000	1	7½	⅝

COFFEE

In a little over fifty years the crop has increased nearly eightfold, viz. :—

Year	Tons	Year	Tons
1832 . . .	95,000	1865 . . .	422,000
1844 . . .	255,000	1875 . . .	505,000
1855 . . .	321,000	1885 . . .	718,000

The production by countries is shown as follows :—

	1855	1880	1885
	Tons	Tons	Tons
Brazil . . .	163,000	333,000	389,000
Java . . .	70,000	90,000	92,000
Ceylon . . .	29,000	33,000	15,000
West Indies . .	28,000	42,000	54,000
Spanish America .	16,000	70,000	123,000
Arabia . . .	5,000	5,000	5,000
India . . .	5,000	15,000	17,000
Manilla, &c. . .	5,000	20,000	23,000
Total . .	321,000	608,000	718,000

It has been asserted that the total coffee crop of the world in 1820 did not exceed 50,000 tons.

Consumption for five years ending 1884 compares with five years ending 1864 as follows :—

	Tons, per Annum		Oz. yearly, per Inhabitant	
	1860-64	1880-84	1860-64	1880-84
United Kingdom .	16,000	15,000	19	14
France . .	40,000	65,000	37	62
Germany . .	70,000	105,000	69	81
Russia . .	6,000	8,000	3	3
Austria . .	21,000	36,000	19	32
Italy . .	12,000	14,000	19	17
Spain and Portugal .	3,000	5,000	5	9
Scandinavia .	12,000	25,000	80	110
Holland . .	14,000	40,000	145	322
Belgium . .	18,000	25,000	131	158
Switzerland . .	7,000	9,000	98	114
United States .	90,000	215,000	90	140
Brazil, &c. .	81,000	78,000	...	
Total . .	390,000	640,000	...	...

The coffee fields of Brazil cover 2,200,000 acres, with about 900 million trees—that is, 400 per acre, each tree averaging almost 1 lb. per annum, the industry employing 800,000 hands.

CONSUMPTION IN UNITED KINGDOM.

Year	Millions Lbs.	Oz. per Inhabitant	Duty, per Lb.	Price, per Cwt.
			Pence	Shillings
1801 . . .	1	1	6	87
1811 . . .	6	5	7	42
1821 . . .	7	5	12	102
1831 . . .	22	14	6	56
1841 . . .	27	16	6	98
1851 . . .	30	18	6	68
1861 . . .	35	21	3	69
1871 . . .	30	15	3	63
1881 . . .	31	14	2	78
1888 . . .	30	13	2	76

COLONIES

Those of the different European Powers show as follows :—

	Population	Square Miles	Commerce, £	Revenue, £	Railways, Miles
British	232,800,000	7,946,000	448,600,000	119,400,000	38,050
French	32,040,000	1,080,000	35,300,000	4,600,000	2,290
Spanish	8,200,000	170,000	42,500,000	10,000,000	400
Portuguese	2,800,000	206,000	2,000,000	1,000,000	...
Dutch	24,000,000	660,000	32,000,000	12,000,000	...
Danish	130,000	75,000	1,000,000	...	...
German	385,000	99,000	...	...	...
Total . .	300,355,000	10,236,000	561,400,000	147,000,000	40,740

BRITISH

The British colonies are as follows :—

	Population	Commerce, £	Revenue, £	Debt, £	Railways, Miles	Area, Square Miles
Australia	3,550,000	107,800,000	24,800,000	157,500,000	9,620	3,160,000
Canada	5,020,000	43,900,000	7,600,000	47,300,000	11,780	3,450,000
South Africa . . .	1,860,000	17,000,000	3,900,000	26,500,000	1,820	230,000
West Africa . . .	1,560,000	2,500,000	250,000	100,000	...	33,000
Mauritius	370,000	5,200,000	700,000	700,000	90	700
Ceylon	2,770,000	7,200,000	1,100,000	2,200,000	180	25,400
Singapore . . .	540,000	47,200,000	700,000	...	...	1,500
West Indies . . .	1,570,000	14,900,000	2,100,000	3,100,000	160	127,000
Cyprus	220,000	500,000	200,000	...	...	3,600
Various	740,000	39,400,000	700,000	500,000	20	45,400
Colonies	18,200,000	285,600,000	42,050,000	237,900,000	23,670	7,076,600
India	214,600,000	163,000,000	77,300,000	185,700,000	14,380	870,000
Total . . .	232,800,000	448,600,000	119,350,000	423,600,000	38,050	7,946,600

The above statement is to the end of 1887. Commerce includes merchandise and precious metals.
If we exclude Malta, Gibraltar, Cyprus, and Hong-Kong, for which the statistics are imperfect, we find the growth of the colonies (without India) as follows :—

Year	Population	Commerce, £	Revenue, £	Debt, £	Railways, Miles
1840	5,100,000	27,100,000	2,400,000	5,300,000	...
1860	9,100,000	116,600,000	12,500,000	64,700,000	2,330
1870	11,600,000	145,700,000	19,800,000	79,100,000	4,360
1880	14,700,000	214,700,000	30,100,000	143,400,000	13,080
1887	17,400,000	247,000,000	41,300,000	237,700,000	23,650

INDIA

The official returns show as follows :—

Year	Population	Commerce, £	Revenue, £	Debt, £	Railways, Miles
1814	40,000,000	10,500,000	13,100,000	18,000,000	...
1820	83,000,000	9,050,000	15,300,000	24,000,000	...
1830	91,000,000	9,800,000	17,000,000	30,400,000	...
1850	123,000,000	34,100,000	27,600,000	53,900,000	...
1860	143,000,000	69,500,000	39,700,000	98,100,000	840
1870	191,000,000	100,400,000	50,900,000	108,200,000	4,830
1880	199,000,000	122,100,000	68,400,000	160,400,000	9,310
1887	214,600,000	163,000,000	77,300,000	185,700,000	14,380

AUSTRALIA

This group of seven colonies has made great strides :—

Year	Population	Commerce, £	Revenue, £	Debt, £	Railways, Miles
1800	10,000	200,000	...	...	...
1820	90,000	800,000	70,000	...	...
1840	200,000	3,300,000	600,000	...	...
1850	240,000	6,100,000	...	...	...
1860	1,264,000	49,900,000	6,700,000	11,900,000	160
1870	1,980,000	57,300,000	11,600,000	36,200,000	950
1880	2,880,000	94,300,000	17,100,000	87,900,000	4,880
1888	3,680,000	121,800,000	27,600,000	166,000,000	10,430

In 1888 the several colonies stood thus :—

	Population	Commerce, £	Revenue, £	Debt, £	Railways, Miles
New South Wales	1,036,000	41,700,000	8,900,000	44,100,000	2,206
Victoria	1,091,000	37,800,000	7,600,000	34,600,000	2,191
South Australia	313,000	12,400,000	2,500,000	19,200,000	1,500
New Zealand	650,000	13,700,000	4,100,000	37,000,000	1,861
Queensland	387,000	11,800,000	3,500,000	25,900,000	1,931
Tasmania	146,000	2,900,000	600,000	4,500,000	485
Western Australia	42,000	1,500,000	400,000	1,300,000	257
Total . .	3,715,000	121,800,000	27,600,000	166,600,000	10,431

In the above table commerce includes both merchandise and gold.

CANADA

The official returns of this colony, including Newfoundland, show thus :—

Year	Population	Commerce, £	Revenue, £	Debt, £	Railways, Miles
1820	840,000	1,000,000	240,000	...	...
1830	910,000	3,300,000	300,000	...	...
1840	1,690,000	6,200,000	500,000	1,200,000	...
1860	3,360,000	22,700,000	2,400,000	13,200,000	2,170
1870	3,830,000	33,600,000	3,600,000	17,000,000	3.200
1880	4,500,000	39,000,000	5,100,000	32,100,000	6,890
1887	5,020,000	43,900,000	7,600,000	47,300,000	11,788

SOUTH AFRICA

Official and other statements give us the following :—

Year	Population	Commerce, £	Revenue, £	Debt, £	Railways, Miles
1840	140,000	1,000,000	200,000	...	...
1860	420,000	5,200,000	800,000	600,000	...
1870 . . . . : .	860,000	5,900,000	950,000	1,400,000	40
1880	1,120,000	19,200,000	3,100,000	13,000,000	1,005
1887	1,860,000	17,000,000	4,000,000	26,500,000	1,820

The statistics for the two colonies in 1887 were as follows :—

	Cape Colony	Natal	Total
Population . .	1,380,000	480,000	1,860,000
Commerce, £ .	13,700,000	3.300,000	17,000,000
Revenue, £ . .	3,200,000	800,000	4,000,000
Debt, £ . . .	22,500,000	4,000,000	26,500,000
Railways, miles .	1,600	220	1,820

The several colonies stood thus in 1887 :—

	Population	Commerce, £	Revenue, £	Debt, £
Gold Coast . .	1,405,000	700,000	120,000	...
Lagos	75,000	1,000,000	50,000	...
Sierra Leone . .	60,000	600,000	60,000	60,000
Gambia . . .	15,000	200,000	10,000	...
St. Helena . .	5,000	...	10,000	...
Total . .	1,560,000	2,500,000	250,000	60,000

WEST AFRICA

Official returns give the following respecting this group :—

Year	Population	Commerce, £	Revenue, £	Debt, £
1850	205,000	800,000	60,000	...
1860	...	1,000,000	80,000	...
1870	550,000	2,500,000	180,000	...
1880	...	3,100,000	280,000	90,000
1887	1,560,000	2,500,000	250,000	60,000

Excluding St. Helena, the West Coast colonies count only 520 whites, mostly Government officials or missionaries. The chief product is palm-oil.

MAURITIUS

We have statistics from 1827 as follows :—

Year	Population	Commerce, £	Revenue, £	Debt, £	Railway, Miles
1827	95,000	1,000,000	200,000	...	...
1850	180,000	2,300,000	300,000	...	...
1860	310,000	5,000,000	600,000	...	...
1870	320,000	4,200,000	600,000	1,100,000	70
1880	380,000	5,900,000	800,000	800,000	90
1887	370,000	5,200,000	700,000	700,000	90

The export of sugar, the chief product, rose from 30,000 tons in 1836 to 140,000 tons in 1877, but has now declined to 100,000 tons.

CEYLON

The principal items are shown as follows :—

Year	Population	Commerce, £	Revenue, £	Debt, £	Railway, Miles
1850	1,580,000	3,800,000	400,000	...	...
1860	1,890,000	6,100,000	800,000	...	...
1870	2,410,000	8,400,000	1,100,000	700,000	70
1880	2,760,000	8,700,000	1,200,000	1,400,000	140
1887	...	7,200,000	1,100,000	2,200,000	180

Coffee-planting began about 1840, the exportation reaching 32,000 tons in 1860, and rising to 50,000 tons in 1878, but now it barely reaches 9000 tons. Tea is, however, assuming importance, the shipment rising from £2000 worth in 1878, to a value of £700,000 in 1887. In like manner Chinchona* has risen from £90,000 in 1881 to £350,000 in 1886.

* This is often incorrectly called Cinchona. It takes its name from the Marquis of Chinchon, Viceroy of Peru, whose wife was cured by a Jesuit who prescribed this remedy.

SINGAPORE

Sometimes called the Straits Settlement. Statistics show thus :—

Year	Population	Commerce, £	Revenue, £
1860	280,000	14,500,000	100,000
1870	310,000	18,700,000	300,000
1880	420,000	25,700,000	400,000
1887	540,000	47,200,000	700,000

WEST INDIES

Under this heading may be comprised all the following colonies, for which the statistics are given for 1887 :—

	Population	Commerce, £	Revenue, £	Debt, £	Railway, Miles
Jamaica	600,000	2,800,000	600,000	1,600,000	70
Trinidad	180,000	3,800,000	500,000	600,000	50
Barbados	170,000	2,100,000	200,000	...	20
Bahamas	40,000	300,000	50,000	100,000	...
Honduras	30,000	400,000	50,000	...	...
British Guiana	280,000	3,800,000	500,000	600,000	20
Small islands	270,000	1,700,000	200,000	200,000	...
Total . .	1,570,000	14,900,000	2,100,000	3,100,000	160

The progress of the group is shown as follows :—

Year	Population	Commerce, £	Revenue, £	Debt, £	Railways, Miles
1850	900,000	9,100,000	700,000	900,000	...
1860	1,090,000	11,900,000	1,000,000	1,000,000	...
1870	1,280,000	14,600,000	1,400,000	1,600,000	30
1880	1,490,000	17,800,000	1,900,000	1,800,000	80
1887	1,570,000	14,900,000	2,100,000	3,100,000	160

OTHER BRITISH COLONIES

	Population	Commerce, £	Revenue, £	Debt, £	Square Miles
Malta . .	160,000	19,800,000	200,000	80,000	120
Gibraltar .	20,000	5,000,000	50,000	...	2
Aden . .	40,000	4,000,000	...	...	70
Cyprus . .	220,000	500,000	200,000	...	3,600
Bermudas .	15,000	400,000	30,000	10,000	20
Falklands .	2,000	200,000	10,000	...	6,500
Hong-Kong	210,000	9,000,000	300,000	200,000	30
Labuan .	6,000	200,000	5,000	...	30
N. Borneo	150,000	300,000	50,000	...	31,000
Feegee . .	125,000	500,000	65,000	260,000	7,700
Total .	948,000	39,900,000	910,000	550,000	49,072

The above returns are for 1887, except as regards the commerce of Malta, Gibraltar, and Hong-Kong, the items for which are the latest published, over ten years old.

Hong-Kong is a thriving colony, with considerable trade, shipping entries in 1888 reaching 6,500,000 tons. Statistics show :—

	1879	1889
Saving-bank deposits, £ . .	1,400,000	8,300,000
Joint-stock companies capital, £ .	8,000,000	20,000,000

FRENCH COLONIES

The protected countries are stated to be as follows :—

	Population	Square Miles
Tonquin . . .	12,000,000	34,700
Gambia . . .	850,000	268,000
Madagascar . .	1,500,000	228,000
Annam . . .	5,000,000	106,000
Cambodia . . .	1,500,000	32,400
Total . . .	20,850,000	669,100

The following colonial statistics refer to 1885 :—

	Births	Deaths	Acres Tilled	Value of Farms, £
Reunion . . .	4,200	5,200	140,000	3,900,000
Cochin-China .	62,000	36,000	2,300,000	...
Martinique . .	5,570	4,020	90,000	3,600,000
Guadeloupe . .	4,300	4,720	100,000	5,900,000

An official statement in 1885 gives the following returns :—

	Population	Square Miles	Imports, £	Exports, £	Railway, Miles	Revenue, £
Algeria	3,820,000	257,400	9,400,000	7,900,000	1,580	1,700,000
Tunis	1,500,000	45,000	1,300,000	800,000	260	1,000,000
Cochin-China . .	1,790,000	23,000	4,400,000	3,400,000	40	1,100,000
Pondicherry . .	280,000	200	300,000	1,100,000	...	...
Nossi-Bè, &c. . .	30,000	2,400	200,000	200,000	...	...
Reunion . . .	180,000	800	800,000	600,000	70	200,000
Senegal . . .	140,000	138,400	1,000,000	700,000	250	100,000
Tahiti . . .	10,000	450	200,000	100,000	...	...
New Caledonia .	60,000	7,700	300,000	200,000	...	100,000
Guiana . . .	30,000	46,800	300,000	200,000	...	...
Martinique . .	170,000	380	900,000	800,000 }		
Guadeloupe . .	180,000	720	800,000	700,000 }	120	400,000
Marquesas, &c. .	50,000	500	300,000	300,000	...	...
Total . .	8,240,000	523,750	20,200,000	17,000,000	2,320	4,600,000

ALGERIA

This is the best of the French colonies, and its progress is shown by the number of European settlers :—

	1833	1845	1856	1866	1876	1886
French	3,500	46,300	92,800	122,100	155,700	219,600*
Spaniards	1,300	25,300	42,200	58,500	92,500	120,100
Italians	1,100	7,700	9,500	16,700	25,800	
Maltese	1,200	8,100	7,100	10,600	14,200	} 86,200
Sundry	700	7,900	9,200	10,100	23,300	
Total . .	7,800	95,300	160,800	218,000	311,500	425,900

* This appears to include 70,000 children born in the colony.

The population of the territory was made up thus in 1876 :—

Arabs under military rule . . .	1,408,000
Arabs under civil rule . . .	763,000
French settlers . . .	156,000
Foreign settlers . . .	155,000
Jewish population . . .	33,000
Total .	2,515,000

The territory under military law covered 110,000, that under civil law 16,000 square miles, total 126,000 square miles, or 78 million acres. The ordinary garrison is 50,000 men, not included above.

The work of colonisation from the time of the conquest (1830–36) was slow until 1848, when General Lamoricière obtained a grant of two millions sterling from the French Legislature for the purpose. In 1863 an agricultural census showed 102,000 Europeans living on farms that covered an area of 1,300,000 acres. Further grants of 240,000 acres were made in 1871 for Alsatian refugees, and in 1877 the area of farms held by settlers was 2,570,000 acres, distributed among 510 colonies or villages. The figures for 1863 and 1877 showed thus :—

	1863	1877
Men	42,300	57,600
Women	28,600	38,500
Children	30,900	47,300
Farming population .	101,800	143,300
Acres	1,300,000	2,570,000

Each colony or group of settlers averages 5000 acres, with 60 habitations and 300 inhabitants, the Government having expended £120 for each family, or £6000 per colony, in all £3,000,000 sterling. There are 2,100,000 Arabs, holding 39½ million acres. Forests and crown-lands cover 35 million acres. The Arabs have nearly 7 million acres under tillage ; their flocks and herds count 8,000,000 head. The French have spent over 20 millions sterling on roads and other public works : the roads over the Atlas and other ranges are excellent. The colony has suffered much from locusts. The first railway was begun in 1863, and there are now 1550 miles in traffic. In 1886 the imports were £9,700,000, exports £7,300,000. Revenue £1,800,000, which is much less than the annual expenditure. Entries of shipping 1,980,000 tons yearly, of which 1,170,000 are French.

TUNIS

This territory can hardly be called a colony: it was annexed by France in 1881, but has few French residents. There are 30,000 Christians and 30,000 Jews ; the former including 10,000 Italians, 8000 Maltese, and the rest a mixture of all nations. Revenue, £960,000 ; debt, £5,700,000. The shipping entries reach 1,600,000 tons yearly.

SPANISH COLONIES

Official and other documents give us the following :—

	Square Miles	Population	Commerce, £	Railway, Miles	Revenue, £
Cuba	46,000	1,520,000	28,000,000	930	5,100,000
Porto Rico . .	3,700	650,000	4,300,000	...	800,000
Canaries . . .	2,700	280,000	1,500,000	...	...
Philippines . .	114,400	5,600,000	9,300,000	...	2,000,000
Fernando Po .	1,500	50,000	...	...	...
Mariana Islands	400	10,000	...	...	...
Carolinas . .	1,500	40,000	...	...	...
Total . .	170,200	8,150,000	42,500,000	...	...

CUBA AND PORTO RICO

The principal products of these islands are as follows :—

	Value, £			Tons		
	Cuba	Porto Rico	Total	Cuba	Porto Rico	Total
Sugar	9,000,000	800,000	9,800,000	670,000	60,000	730,000
Tobacco	5,000,000	130,000	5,130,000	20,000	2,000	22,000
Coffee	1,000,000	900,000	1,900,000	20,000	20,000	40,000
Sundries	3,800,000	300,000	4,100,000	...	...	...
Total . . .	18,800,000	2,130,000	20,930,000	...	...	...

Cuba has 930 miles of railway and 2800 of telegraphs. The revenue averages £5,100,000, of which £2,400,000 are Customs-dues, the rest taxes. The consolidated debt consists of £25,000,000 in 6 per cents., largely held in Germany. Shipping entries at Havana and other ports sum up 1,350,000 tons yearly, 540,000 tons being Spanish, and the remainder 60 per cent. foreign flags. Havana has a population of 198,000.

The Philippine Islands have 120 miles of railway and 700 of telegraphs. Shipping entries at Manilla do not exceed yearly 300,000 tons. Imports, £4,100,000 ; exports, £5,200,000, viz. :—

	£
Sugar	1,800,000
Hemp	1,100,000
Tobacco	500,000
Coffee	300,000
Sundries	1,500,000
Total . . .	5,200,000

The revenue reaches £2,000,000, of which £400,000 are Customs-dues, the rest taxes. Population of Manilla 182,000.

Statistics of the Canary Islands and other colonies will be found under the head of *Agriculture*, p. 58.

PORTUGUESE COLONIES

Official and other documents give us the following :—

	Square Miles	Population	Revenue, £
Madeira . . .	320	130,000	...
Azores . . .	910	260,000	...
Cape Verd Islands .	1,860	105,000	50,000
St. Thomas and Prince .	420	20,000	25,000
Angola . . .	115,000	900,000	130,000
Mozambique . .	80,000	500,000	60,000
Goa	1,300	480,000	110,000
Timor . . .	6,300	300,000	} 70,000
Macao . . .	4	70,000	}
Total .	206,114	2,765,000	445,000

Madeira and the Azores are not treated as colonial possessions, but as two integral provinces of Portugal, with deputies sitting in the Lisbon Cortes.

DUTCH COLONIES

The latest information is to the following effect :—

	Square Miles	Population
Java .	51,300	18,100,000
Sumatra .	46,200	940,000
Bencoolen	9,600	130,000
Borneo	197,000	1,210,000
Celebes .	45,200	350,000
Moluccas .	42,400	330,000
New Guinea	67,400	200,000
Palembang	61,200	480,000
Other islands	95,200	2,160,000
East Indies	615,500	23,900,000
Dutch Guiana .	46,100	60,000
Curaçoa, &c. .	440	46,000
Total .	662,040	24,006,000

The East Indian possessions show an aggregate commerce of 14 millions sterling imports and 16 millions exports. The gross revenue is £11,800,000. The Dutch-India Company has a monopoly of Java, which gives a net profit of 3 millions sterling per annum. The population of the East Indian possessions is as follows :—

European settlers	34,000
Garrison	14,000
Chinese	310,000
Natives	23,542,000
Total	23,900,000

Most of the natives are Mahometans, except those of the Moluccas, who are Christians.

The revenue is obtained thus :—

Coffee plantations	£4,700,000
Opium plantations	1,500,000
Land-tax, &c. .	5,600,000
Total	11,800,000

DANISH COLONIES

Latest information may be summed up thus :—

	Square Miles	Population
Iceland	40,200	72,000
Greenland	34,000	10,000
Faroe Islands . . .	500	11,000
St. Thomas, &c. . .	140	33,000
Total . . .	74,840	126,000

Iceland is in reality a republic, under Danish protection. In 1804 the Census showed 4750 farms, with 47,000 inhabitants ; some grain was then cultivated. At present the island depends mainly on its fisheries. A vessel of 60 tons with twelve men can earn £440 in the cod-fishing season. Greenland also depends on fishing, the annual product averaging 12,000 barrels of blubber and 3000 of cod-liver. The West Indian possessions comprise the three islands of St. Thomas, Sainte Croix, and St. John, which produce yearly 7000 tons of sugar and one million barrels of rum. Denmark was the first of all countries to abolish slavery, by liberating her West Indian slaves in 1826.

GERMAN COLONIES

The extent and population of the new German possession of Cameroons in Africa are not known. The other possessions are :—

	Square Miles	Population
New Guinea . . .	70,000	107,000
Bismarck Archipelago	20,000	188,000
Solomon Islands . .	9,000	80,000
Marshall Islands . .	40	10,000
Total . . .	99,040	385,000

COMMERCE

International trade has increased fortyfold since the beginning of the eighteenth century. The following table shows approximately the aggregate value of imports and exports for each country :—

MILLIONS, £ STERLING

	1720	1750	1780	1800	1820	1830	1840	1850	1860	1870	1880	1889
Great Britain .	13	21	23	67	74	88	114	169	375	547	698	740
France .	7	13	22	31	33	41	66	95	167	227	339	311
Germany .	8	15	20	36	40	46	52	70	130	212	294	367
Russia .	8	14	17	30	22	28	33	40	48	103	131	118
Austria .	2	4	6	8	10	15	22	29	47	83	107	92
Italy .	3	5	7	10	15	20	30	38	52	66	91	94
Spain .	10	14	18	12	10	7	10	11	25	41	50	59
Portugal .	2	3	4	4	3	3	4	5	8	10	14	18
Scandinavia .	2	3	5	5	6	8	12	18	27	48	64	72
Holland and Belgium	4	6	8	15	24	30	45	61	86	136	237	310
Switzerland .	1	2	3	5	6	8	10	20	30	45	60	60
Turkey, &c. .	2	3	4	5	6	7	10	20	29	55	49	72
Europe .	62	103	137	228	249	301	408	576	1,024	1,573	2,134	2,313
United States .	...	...	3	17	23	22	41	62	136	165	308	320
Spanish America .	10	15	20	25	30	35	48	70	94	135	160	166
British Colonies .	2	3	1	2	3	9	21	44	103	128	203	298
India .	9	9	10	10	11	10	20	30	52	85	108	131
Various .	5	10	15	20	25	30	35	50	80	105	120	149
The World .	88	140	186	302	341	407	573	832	1,489	2,191	3,033	3,377

The greatest relative increase was in the decade between 1850 and 1860, namely, 80 per cent., that period being contemporaneous with the introduction of free trade.

COMMERCE.

Aggregate of Imports and Exports, millions £.

740	G. BRITAIN
367	GERMANY
320	U. STATES
311	FRANCE
199	HOLLAND
118	RUSSIA
111	BELGIUM
94	ITALY
92	AUSTRIA
74	AUSTRALIA *
60	SWITZERLAND
59	SPAIN
42	CANADA
30	SWEDEN
26	DENMARK
18	PORTUGAL

* Exclusive of Inter-Colonial Trade.

Trade for Population, Shillings per Inhabitant.

G. BRITAIN	390
GERMANY	156
U. STATES	100
FRANCE	163
HOLLAND	900
RUSSIA	27
BELGIUM	370
ITALY	62
AUSTRIA	48
AUSTRALIA *	405
SWITZERLAND	400
SPAIN	70
CANADA	168
SWEDEN	126
DENMARK	260
PORTUGAL	80

The trade of all nations from 1861 to 1886 was as follows :—

MILLIONS £ STERLING

	Imports				Exports			
	1861–70	1871–80	1881–86	26 Years	1861–70	1871–80	1881–86	26 Years
United Kingdom	2,701	3,714	2,348	8,763	2,129	2,778	1,745	6,652
France	1,090	1,560	1,086	3,736	1,100	1,390	806	3,296
Germany	950	1,740	921	3,611	680	1,270	925	2,875
Russia	270	490	306	1,066	280	480	339	1,099
Austria	302	570	302	1,174	350	505	360	1,215
Italy	361	472	319	1,152	263	444	262	969
Spain and Portugal	222	253	231	706	164	242	199	605
Belgium	305	562	355	1,222	246	441	307	994
Holland	319	630	517	1,466	258	432	399	1,089
Scandinavia	169	348	235	752	151	262	169	582
Other countries	183	174	345	702	225	159	311	695
Europe	6,872	10,513	6,965	24,350	5,846	8,403	5,822	20,071
United States	493	988	807	2,288	361	1,122	946	2,429
Canada	161	179	149	489	132	151	125	408
Australia	289	402	366	1,057	191	343	282	816
India	293	368	322	983	518	597	495	1,610
China and Japan	244	289	170	703	233	271	160	664
South America	528	587	317	1,432	513	658	359	1,530
Egypt	73	52	49	174	184	136	74	394
Java	52	91	84	227	93	165	96	354
Other countries	223	318	542	1,083	230	311	602	1,143
Total	9,228	13,787	9,771	32,786	8,301	12,157	8,961	29,419

Imports, of course, always sum up a higher value than exports, the former including freight, insurance, commission, and other charges, which make up about 6 per cent. on the original value of exports at port of shipment. The surplus thus represented by imports has been declining in ratio since 1880, probably owing to cheaper freights and the facilities afforded by telegraphs. The surplus was as follows :—

Period	Millions Sterling	Percentage over Exports
1861–70	927	11.7
1871–80	1,630	13.6
1881–86	810	9.0
1887–88	94	6.0

The surplus of imports has been chiefly among European nations as follows :—

	Millions £ Sterling				Percentage over Exports			
	1861–70	1871–80	1881–86	26 Years	1861–70	1871–80	1881–86	26 Years
United Kingdom	572	936	603	2,111	27	33	35	32
France	...	170	280	440	...	12	35	14
Germany	270	470	...	736	40	38	...	26
Italy	98	28	57	183	37	6	22	19
Spain and Portugal	58	11	32	101	35	5	16	17
Belgium	59	121	48	228	24	27	16	23
Holland	61	198	118	377	23	46	30	35
Scandinavia	18	86	66	170	12	32	40	30

The following table shows the proportions of the world's commerce corresponding to various nations since 1830 :—

	1830	1850	1870	1881–86	1889
United Kingdom	21.5	20.4	25.0	20.8	22.0
France	10.0	11.3	10.4	10.1	9.2
Germany	11.2	8.4	9.7	9.8	10.9
Russia	6.8	4.9	4.8	3.4	3.5
Austria	3.6	3.4	3.7	3.5	2.7
Italy	4.9	4.6	3.0	3.1	2.7
Spain and Portugal	3.2	1.9	2.3	2.3	2.3
Belgium	3.5	2.5	2.8	3.6	3.3
Holland	3.8	4.9	3.2	4.8	5.9
Scandinavia	2.0	2.1	2.2	2.1	2.1
Other countries	3.5	5.0	4.7	3.5	4.0
Europe	74.0	69.4	71.8	67.0	68.6
United States	5.4	7.5	7.5	9.3	9.5
South America	8.6	8.3	5.5	3.5	3.4
British colonies	4.6	8.9	9.5	10.7	9.0
China, &c. &c.	7.4	5.9	5.7	9.5	9.5
Total	100.0	100.0	100.0	100.0	100.0

The above comprises only merchandise ; specie, bullion and gold-dust are excluded. The item of British colonies includes also India.

The commerce of the principal nations compared with population thus :—

	1830			1870			1889		
	£	s.	d.	£	s.	d.	£	s.	d.
United Kingdom	3	12	0	17	7	0	19	10	0
France	1	4	0	6	4	0	8	3	0
Germany	1	14	0	5	6	0	7	16	0
Russia	0	12	6	1	7	0	1	7	0
Austria	0	13	0	2	7	0	2	6	0
Italy	1	3	0	2	11	0	3	3	0
Spain & Portugal	0	16	8	2	12	0	3	5	0
Holland	5	14	0	19	8	0	45	0	0
Belgium	3	18	0	12	12	0	18	10	0
Scandinavia	1	12	0	6	5	0	8	1	0
Europe	1	9	8	5	18	2	7	0	0
United States	2	0	0	4	9	3	5	0	0

The relative increase in the United States has been much less than in Europe.

The following table shows, in millions £ sterling, the average annual trade of each country in the years 1881 to 1886, and also for 1889, or the year last published :—

	1881–86			1889		
	Imports	Exports	Total	Imports	Exports	Total
United Kingdom	391	291	682	427	313	740
France . . .	181	134	315	167	144	311
Germany . . .	153	154	307	204	163	367
Russia . . .	51	56	107	39	79	118
Austria . . .	50	60	110	48	44	92
Italy	53	44	97	56	38	94
Spain	30	27	57	29	30	59
Portugal . . .	8	6	14	11	7	18
Sweden . . .	17	13	30	16	14	30
Norway . . .	9	6	15	9	7	16
Denmark . . .	13	9	22	15	11	26
Belgium . . .	59	51	110	61	50	111
Holland . . .	86	66	152	106	93	199
Switzerland . .	24	23	47	33	27	60
Greece . . .	5	3	8	4	3	7
Roumania . .	12	9	21	13	10	23
Servia	2	2	4	2	2	4
Bulgaria . . .	2	2	4	3	3	6
Turkey . . .	17	9	26	20	13	33
Europe . . .	1,163	965	2,128	1,263	1,051	2,314

	1881–86			1889		
	Imports	Exports	Total	Imports	Exports	Total
United States .	134	158	292	154	166	320
Canada . . .	25	21	46	23	19	42
Australia . . .	61	47	108	68	62	130
South Africa .	8	9	17	9	10	19
Mexico . . .	6	7	13	8	12	20
Central America	3	4	7	3	4	7
South America .	53	50	103	57	57	114
West Indies . .	8	8	16	7	8	15
India * . . .	43	66	109	54	77	131
China	22	19	41	26	23	49
Japan	6	8	14	11	11	22
Java	14	16	30	14	16	30
Persia	4	3	7	5	3	8
Egypt	8	12	20	7	12	19
Algeria . . .	10	7	17	9	8	17
Cuba	10	18	28	10	18	28
Other countries	40	48	88	40	52	92
The world . .	1,618	1,466	3,084	1,770	1,607	3,377

* In this table 20 per cent. is taken off the nominal value of Indian trade because the Government returns compute the rupee at 24 pence.

The following table shows approximately the weight of the principal articles of merchandise exchanged between nations :—

	Tons Merchandise Sea-borne Yearly				
	1840	1861–70	1871–80	1880	1887
Coal	1,400,000	20,300,000	30,900,000	39,200,000	49,300,000
Iron	1,100,000	4,200,000	6,000,000	8,500,000	11,800,000
Timber	4,100,000	6,300,000	8,000,000	9,000,000	12,100,000
Grain	1,900,000	4,400,000	11,200,000	16,800,000	19,200,000
Sugar	700,000	1,200,000	1,800,000	2,900,000	4,400,000
Petroleum . . .	...	240,000	1,400,000	2,100,000	2,700,000
Cotton	400,000	600,000	1,000,000	1,200,000	1,800,000
Wool	20,000	100,000	250,000	300,000	350,000
Jute	...	100,000	300,000	400,000	600,000
Meat	...	100,000	400,000	650,000	700,000
Coffee	200,000	300,000	400,000	500,000	600,000
Wine	200,000	500,000	900,000	1,200,000	1,400,000
Salt	800,000	1,000,000	1,200,000	1,300,000	1,300,000
Sundries	9,180,000	16,660,000	24,250,000	28,950,000	33,750,000
Total . .	20,000,000	56,000,000	88,000,000	113,000,000	140,100,000

The total weight of sea-borne merchandise composing the commerce of 27 years, down to 1887, and the value approximately of same at shipment, are shown as follows :—

	Millions of Tons	Value, Millions	Ratio of	
			Weight	Value
Coal	830	410	36.0	1.3
Iron	170	480	7.4	1.6
Timber . . .	220	660	9.5	2.1
Grain	180	1,050	7.8	3.4
Sugar	55	1,130	2.4	3.7
Petroleum . .	32	180	1.4	0.6
Cotton	27	180	1.2	0.6
Salt	30	18	1.3	...
Wine	23	510	1.0	1.6
Coffee	11	840	0.5	2.7
Meat	10	560	0.4	1.8
Sundries . . .	712	24,982	31.1	80.6
Total .	2,300	31,000	100.0	100.0

If we compare the weight of sea-borne merchandise with the tonnage of shipping of all nations at various dates, we find as follows :—

Year	Tons Shipping	Tons Merchandise	Tons Carried per Ton of Shipping
1840	9,400,000	20,000,000	2.1
1865	17,000,000	56,000,000	3.3
1875	18,000,000	88,000,000	4.9
1880	20,300,000	113,000,000	5.6
1887	21,200,000	140,000,000	6.6

Each ton of shipping now carries more than three times as much as it did in 1840, which is, of course, due to the use of steam, one ton of steam-shipping being equivalent to four of sailing-ships. The traffic of 1887 was approximately as follows :—

	Tonnage Register	Tons Carried
Steamers . . .	8,600,000	102,000,000
Sailing . . .	12,600,000	38,000,000
Total . .	21,200,000	140,000,000

GREAT BRITAIN

There are non-continuous records of British commerce since the time of Edward III.

Year	Reign	Imports	Exports	Total	Per Inhabitant
		£	£	£	£ s. d.
1355	Edward III.	120,000	294,000	414,000	0 2 10
1573	Elizabeth	2,100,000	1,880,000	3,980,000	0 15 0
1614	James I.	2,140,000	2,090,000	4,230,000	0 16 6
1687	James II.	4,200,000	4,080,000	8,280,000	1 10 2
1697	William III.	3,500,000	3,500,000	7,000,000	1 5 6
1701	,, ...	5,900,000	6,900,000	12,800,000	2 2 0
1712	Anne	5,800,000	6,900,000	12,700,000	2 0 0
1726	George I.	6,700,000	7,700,000	14,400,000	1 18 0
1736	George II.	7,300,000	9,700,000	17,000,000	2 5 0
1750	,, ...	7,800,000	12,700,000	20,500,000	2 10 0
1760	George III.	10,700,000	15,800,000	26,500,000	3 3 0
1770	,, ...	13,400,000	16,000,000	29,400,000	3 6 0
1780	,, ...	10,800,000	12,600,000	23,400,000	2 10 0
1790	,, ...	19,100,000	20,100,000	39,200,000	3 18 0
1800	,, ...	24,100,000	43,200,000	67,300,000	6 8 0
1810	,, ...	30,200,000	58,800,000	89,000,000	5 0 0
1820	George IV.	29,700,000	44,200,000	73,900,000	3 10 0
1830	William IV.	42,300,000	45,800,000	88,100,000	3 14 0
1840	Victoria	51,600,000	62,000,000	113,600,000	4 4 0
1850	,, ...	99,000,000	70,000,000	169,000,000	6 4 0
1860	,, ...	210,500,000	164,500,000	375,000,000	12 17 0
1870	,, ...	303,300,000	244,100,000	547,400,000	17 7 0
1880	,, ...	411,200,000	286,400,000	697,600,000	20 5 0
1889	,, ...	427,200,000	313,000,000	740,200,000	19 10 0

The export trade of G. Britain in 1798 was as follows :—

British Products	£	Foreign and Colonial	£
Woollen goods .	6,200,000	Coffee	5,800,000
Cotton goods .	2,300,000	Indian textiles .	2,400,000
Linen goods . .	1,200,000	Sugar	1,300,000
Iron and steel .	900,000	Irish linen . .	500,000
Coal	500,000	Tea	400,000
Sugar	400,000	Sundries . . .	3,500,000
Silks	300,000		
Sundries . . .	7,900,000	Total . .	13,900,000
Total . .	19,700,000	Grand total . .	33,600,000

The trade for the years 1888 and 1889 was as follows :—

	Imports, Mill. £				Exports, Mill. £	
	1888	1889			1888	1889
Food	157	171	Textiles		109	110
Textile fibres . .	81	91	Metals		50	56
Hides, timber, &c.	37	44	Clothing . . .		11	11
Manufactures . .	58	64	Chemicals . . .		7	8
Metals	23	22	Sundries . . .		57	63
Chemicals . . .	15	16				
Sundries	16	19	British produce .		234	248
			Colonial		64	65
Total . .	387	427	Total . .		298	313

Commerce between France and the United Kingdom since 1831 shows thus :—

Period	Millions £			Annual Trade, £
	Exports to France	Imports from France	Total Exchanged	
1831–40	16	30	46	4,600,000
1841–50	31	55	86	8,600,000
1851–60	84	163	247	24,700,000
1861–70	230	298	528	52,800,000
1871–80	284	421	705	70,500,000
1881–89	209	349	558	62,000,000
59 years	854	1,316	2,170	36,800,000

The trade of 1889 was as follows :—

	Imports from, £	Exports to, £	Total Trade, £	Ratio
France	45,700,000	14,600,000	60,000,000	9.0
Germany . . .	27,100,000	18,400,000	45,500,000	6.8
Russia	27,200,000	5,300,000	32,500,000	4.9
Austria	2,300,000	1,000,000	3,300,000	0.5
Italy	3,200,000	7,100,000	10,300,000	1.5
Spain	11,500,000	4,200,000	15,700,000	2.2
Portugal . . .	3,100,000	2,500,000	5,600,000	0.8
Sweden and Norway . . }	12,700,000	4,500,000	17,200,000	2.5
Denmark . . .	7,900,000	2,400,000	10,300,000	1.5
Holland . . .	26,700,000	9,700,000	36,400,000	5.4
Belgium . . .	17,700,000	7,100,000	24,800,000	3.7
Turkey . . .	5,300,000	6,200,000	11,500,000	1.6
Europe . . .	190,400,000	83,000,000	273,400,000	40.4
United States .	95,300,000	30,300,000	125,600,000	18.8
Spanish America	14,300,000	28,000,000	42,300,000	6.3
China	6,200,000	5,000,000	11,200,000	1.6
Japan	1,000,000	3,900,000	4,900,000	0.7
Egypt	8,500,000	2,900,000	11,400,000	1.6
Various . . .	14,300,000	12,100,000	26,400,000	3.9
Foreign countries	330,000,000	165,200,000	495,200,000	73.3
Australia . . .	26,800,000	22,800,000	49,600,000	7.4
Canada . . .	12,200,000	8,100,000	20,300,000	3.0
South Africa . .	6,100,000	8,900,000	15,000,000	2.2
East Indies . .	44,400,000	34,100,000	78,500,000	11.7
West Indies . .	2,200,000	2,200,000	4,400,000	0.6
Various . . .	5,500,000	6,700,000	12,200,000	1.8
British colonies .	97,200,000	82,800,000	180,000,000	26.7
Total . .	427,200,000	248,000,000	675,200,000	100.0

The above Board of Trade returns exclude exports of colonial and foreign merchandise from the United Kingdom, namely, £65,000,000, the total trade for the year having been £740,200,000. Our trade with the United States is much greater than with any other country, India coming second on the list, and France third.

*

The following table shows the value of merchandise imported from the several foreign countries and colonies since 1854, the earliest date supplied by statistical abstracts of the Board of Trade :—

	Millions £ Sterling					Percentage		
	1854–60	1861–70	1871–80	1881–87	34 Years	1854–60	1861–80	1881–87
France .	89	298	421	264	1,072	7.3	11.2	9.7
Germany	88	162	217	171	638	7.3	5.9	6.3
Russia .	71	169	200	120	560	5.8	5.8	4.4
Austria .	6	10	12	12	40	0.5	0.3	0.4
Italy .	17	33	39	22	111	1.4	1.1	0.8
Spain .	25	54	94	71	244	2.0	2.3	2.6
Portugal	13	23	37	21	94	1.1	0.9	0.8
Belgium	23	71	131	102	327	1.9	3.1	3.8
Holland .	48	110	175	174	507	4.0	4.5	6.4
Denmark .	18	20	40	36	114	1.5	0.9	1.3
Sweden and Norway	24	56	97	76	253	2.0	2.4	2.8
Greece .	5	11	18	13	47	0.4	0.4	0.5
Roumania	6	8	9	24	47	0.5	0.3	0.9
Turkey .	17	54	57	33	161	1.4	1.7	1.3
Europe .	450	1,079	1,547	1,139	4,215	37.1	40.8	42.0
United States	239	360	773	627	1,999	19.7	17.7	23.1
Brazil .	17	59	63	37	176	1.4	1.9	1.3
River Plate .	13	23	26	14	76	1.1	0.8	0.5
Chili .	14	33	39	19	105	1.2	1.1	0.7
Peru .	23	35	45	14	117	1.9	1.2	0.5
Central America .	5	19	24	16	64	0.4	0.7	0.6
Mexico .	2	11	5	4	22	0.2	0.2	0.1
Spanish Colonies .	29	60	51	17	157	2.4	1.7	0.6
Java .	1	1	14	22	38	0.1	0.2	0.8
China and Japan .	63	113	132	69	377	5.2	3.8	2.5
Egypt .	46	158	114	61	379	3.8	4.2	2.2
Various .	32	46	57	35	170	2.5	1.7	1.3
Foreign countries .	934	1,997	2,890	2,074	7,895	77.0	76.0	76.2
India .	105	345	299	241	990	8.7	10.1	8.9
Australia .	38	103	201	173	515	3.1	4.8	6.4
Canada .	42	75	108	75	300	3.5	2.9	2.8
West Indies .	45	69	67	32	213	3.7	2.1	1.3
Singapore .	5	21	29	31	86	0.4	0.8	1.2
Ceylon .	11	33	36	15	95	0.9	1.1	0.6
South Africa .	10	23	42	38	113	0.8	1.0	1.4
Various .	22	35	42	31	130	1.9	1.2	1.2
British colonies .	278	704	824	636	2,442	23.0	24.0	23.8
Grand total .	1,212	2,701	3,714	2,710	10,337	100.0	100.0	100.0

The exports (including also colonial products) for the same period were :—

	Millions £ Sterling					Percentage		
	1854–60	1861–70	1871–80	1881–87	34 Years	1854–60	1861–80	1881–87
France .	69	230	283	180	762	7.0	10.5	8.9
Germany	116	261	334	202	913	11.8	12.1	10.0
Russia .	26	69	101	53	249	2.6	3.5	2.6
Austria .	9	13	14	9	45	0.9	0.6	0.5
Italy .	28	41	74	54	197	2.8	2.3	2.7
Spain .	15	33	43	31	122	1.5	1.5	1.5
Portugal	12	22	27	17	78	1.2	1.0	0.8
Belgium	27	68	128	97	320	2.7	4.0	4.8
Holland .	57	145	193	111	506	5.8	6.9	5.5
Denmark .	7	14	23	17	61	0.7	0.8	0.8
Sweden and Norway	9	22	53	35	119	0.9	1.5	1.7
Greece .	2	8	10	8	28	0.2	0.4	0.4
Roumania	1	4	9	8	22	0.1	0.3	0.4
Turkey .	31	67	70	48	216	3.1	2.8	2.4
Europe .	409	997	1,362	870	3,638	41.3	48.2	43.0
United States	146	233	299	254	932	14.9	10.8	12.6
Brazil .	29	55	68	46	198	2.9	2.5	2.3
River Plate .	12	29	39	46	126	1.2	1.4	2.3
Chili .	10	18	21	15	64	1.0	0.8	0.7
Peru .	7	13	17	7	44	0.7	0.6	0.3

	Millions £ Sterling					Percentage		
	1854-60	1861-70	1871-80	1881-87	34 years	1854-60	1861-80	1881-87
Central America . . .	8	25	30	20	83	0.8	1.1	1.0
Mexico	4	13	10	9	36	0.4	0.5	0.4
Spanish colonies . . .	16	33	37	28	114	1.6	1.4	1.4
Java	6	10	15	13	44	0.6	0.5	0.6
China and Japan . . .	12	54	78	57	201	1.2	2.7	2.8
Egypt	14	60	40	22	136	1.4	2.0	1.1
Various	24	65	50	32	171	2.4	2.4	1.6
Foreign countries . . .	697	1,605	2,066	1,419	5,787	70.4	74.9	70.1
India	99	197	241	223	760	10.2	8.9	11.0
Australia	80	128	188	181	577	8.2	6.4	8.9
Canada	29	60	87	66	242	3.0	3.0	3.3
West Indies	16	32	32	22	102	1.6	1.3	1.1
Singapore	7	16	23	18	64	0.7	0.8	0.9
Ceylon	4	8	10	6	28	0.4	0.4	0.3
South Africa	12	18	49	39	118	1.2	1.4	1.9
Various	36	65	82	51	234	4.3	2.9	2.5
British colonies . . .	283	524	712	606	2,125	29.6	25.1	29.9
Grand total . .	980	2,129	2,778	2,025	7,912	100.0	100.0	100.0

The total volume of trade with the various countries was :—

	Millions £ Sterling					Percentage		
	1854-60	1861-70	1871-80	1881-87	34 Years	1854-60	1861-80	1881-87
France	158	528	704	444	1,834	7.2	10.9	9.4
Germany	204	423	551	373	1,551	9.3	8.6	7.9
Russia	97	238	301	173	809	4.4	4.7	3.6
Austria	15	23	26	21	85	0.7	0.4	0.4
Italy	45	74	113	76	308	2.1	1.7	1.6
Spain	40	87	137	102	366	1.8	2.0	2.2
Portugal	25	45	64	38	172	1.1	1.0	0.8
Belgium	50	139	259	199	647	2.3	3.5	4.2
Holland	105	255	368	285	1,013	4.8	5.6	6.0
Denmark	25	34	63	53	175	1.1	0.9	1.1
Sweden and Norway .	33	78	150	111	372	1.5	2.0	2.3
Greece	7	19	28	21	75	0.3	0.4	0.4
Roumania	7	12	18	32	69	0.3	0.3	0.6
Turkey	48	121	127	81	377	2.3	2.2	1.7
Europe	859	2,076	2,909	2,009	7,853	39.2	44.2	42.2
United States . . .	385	593	1,072	881	2,931	17.6	14.8	18.6
Brazil	46	114	131	83	374	2.2	2.2	1.8
River Plate	25	52	65	60	202	1.1	1.1	1.2
Chili	24	51	60	34	169	1.1	1.0	0.7
Peru	30	48	62	21	161	1.4	1.0	0.4
Central America . . .	13	44	54	36	147	0.6	0.9	0.8
Mexico	6	24	15	13	58	0.3	0.3	0.3
Spanish colonies . . .	45	93	88	45	271	2.1	1.6	1.0
Java	7	11	29	35	82	0.3	0.4	0.7
China and Japan . . .	75	167	210	126	578	3.4	3.3	2.7
Egypt	60	218	154	83	515	2.7	3.3	1.8
Various	56	111	107	67	341	2.6	1.8	1.4
Foreign countries . . .	1,631	3,612	4,956	3,493	13,682	74.6	75.9	73.6
India	204	542	540	464	1,750	9.3	9.7	9.8
Australia	118	231	389	354	1,092	5.4	5.6	7.5
Canada	71	135	195	141	542	3.3	3.0	3.0
West Indies	61	101	99	54	315	2.6	1.8	1.2
Singapore	12	37	52	49	150	0.6	0.8	1.0
Ceylon	15	41	46	21	123	0.7	0.8	0.4
South Africa	22	41	91	77	231	1.0	1.2	1.6
Various	58	100	124	82	364	2.5	2.0	1.9
British colonies . . .	561	1,228	1,536	1,242	4,567	25.4	24.1	26.4
Grand total . .	2,192	4,830	6,492	4,735	18,249	100.0	100.0	100.0

The ratio of our trade with British colonies is increasing, and with European countries declining, except as regards Spain, Belgium, Holland, Scandinavia, and Roumania.

During the said period of 34 years there was a balance of trade against the United Kingdom, the value of imports exceeding that of exports by 2425 millions, or 72 millions sterling per annum. The countries from which we had the largest excess of imports are seen in the following table :—

From	Surplus Imports, Millions £		
	1854–80	1881–87	Total
United States	694	373	1,067
Russia	244	67	311
France	226	84	310
Egypt	204	39	243
India	212	18	230
China and Japan . .	164	12	176
Sweden and Norway .	93	41	134
Spain	82	40	122
West Indies	101	10	111
Other countries . . .	287	137	424
Total . .	2,307	821	3,128

At the same time there were twelve countries which showed a balance of trade in favour of Great Britain, the excess of our exports thither being as follows :—

To	Surplus Exports, Millions £		
	1854–80	1881–87	Total
Germany	244	31	275
Italy	54	32	86
Australia	54	8	62
Turkey	40	15	55
River Plate	18	32	50
Brazil	13	9	22
Other countries . . .	142	11	153
Total . .	565	138	703

The principal articles of merchandise that composed the import trade of the United Kingdom were as follows :—

	Millions Sterling *				
	1854	1860	1870	1880	1889
Grain	22.8	32.8	36.7	69.5	54.1
Cotton	20.2	35.8	53.5	42.8	45.3
Manufactures . . .	4.1	6.4	26.5	33.7	64.3
Meat	3.8	3.9	7.7	26.5	31.7
Wool	6.5	11.0	15.8	26.4	29.7
Sugar	10.8	12.8	17.6	23.0	22.7
Dairy produce . . .	3.1	6.8	11.9	21.2	21.5
Tea and coffee . . .	7.2	9.7	15.4	19.3	14.4
Timber	11.5	10.7	13.2	16.8	19.8
Minerals	3.1	5.3	8.9	15.5	22.1
Wines	6.4	6.2	8.0	8.6	5.9
Flax and jute . . .	5.8	5.6	10.4	10.1	11.8
Silk	6.4	9.9	8.2	3.1	3.6
Sundries	40.7	53.6	69.5	94.7	80.3
Total . .	152.4	210.5	303.3	411.2	427.2

In the above table grain includes also rice and potatoes, wines likewise include spirits, and meat also live cattle and poultry. The above shows the total importation, not only for home use, but also what was re-shipped. The following table shows the value of what was retained for home consumption.

	Millions £ Sterling				
	1854	1860	1870	1880	1889
Grain	21.9	32.0	34.6	66.8	52.5
Cotton	17.9	30.4	45.4	37.3	39.4
Meat	3.8	3.9	7.7	25.7	31.0
Wool	5.0	8.7	10.2	12.0	14.3
Sugar	10.3	12.4	17.1	22.4	21.9
Tea and coffee . . .	5.9	7.5	9.2	10.9	10.1
Wines	4.6	4.7	7.1	7.4	7.0
Dairy produce . . .	3.1	6.8	11.9	21.2	21.5
Timber	11.5	10.7	13.2	16.8	19.8
Sundries	49.8	64.9	102.6	127.5	144.7
Total . .	133.8	182.0	259.0	348.0	362.2

* For example, 22.8 signifies £22,800,000.

The quantities of certain articles of imported merchandise retained for consumption were as follows :—

	1854	1860	1870	1880	1889
Grain, tons	1,460,000	2,630,000	3,760,000	6,700,000	7,330,000
Cotton „	360,000	530,000	510,000	625,000	735,000
Wool „	36,000	53,000	77,000	101,000	160,000
Sugar „	460,000	475,000	700,000	980,000	1,300,000
Butter „	24,000	42,000	98,000	114,000	155,000
Cheese „	19,000	29,000	52,000	87,000	92,000
Tea and coffee, tons .	59,000	63,000	73,000	90,000	95,000
Meat, tons	84,000	87,000	140,000	590,000	790,000
Minerals „	120,000	190,000	290,000	3,070,000	5,150,000
Timber, „	2,650,000	2,850,000	4,500,000	6,400,000	7,870,000
Wine, gallons .	11,900,000	12,200,000	23,500,000	24,300,000	23,800,000

Grain includes also potatoes and rice ; wine includes spirits ; meat includes also lard and live animals, and cocoa is comprised with tea and coffee ; sugar also includes molasses.

The quantities of the principal exports were as follows :—

	1854	1860	1870	1880	1889
Cotton cloth, million yards	1,700	2,800	3,300	4,500	5,002
Woollen goods, „	150	190	290	260	574
Linen goods, „	112	144	226	165	181
Jute goods .	...	...	52	183	265
All textiles, statute miles .	1,120,000	1,790,000	2,220,000	2,910,000	3,220,000
Iron and steel, tons .	1,200,000	1,400,000	2,800,000	3,800,000	4,200,000
Other metals, „	40,000	60,000	100,000	100,000	120,000
Coal, „	4,300,000	7,300,000	11,700,000	18,700,000	29,000,000
Chemicals, „	50,000	100,000	200,000	420,000	390,000
Cement, „	20,000	80,000	150,000	280,000	630,000
All yarns, million lbs.	184	259	276	274	345

The consumption per head of the population has been of various imported articles as follows :—

	1845	1850	1860	1870	1880	1889
Grain, bushels .	1.0	1.5	3.7	4.9	7.6	7.7
Sugar, lbs. . .	20	25	36	50	65	72
Meat ,, . .	0	6	6	10	38	43
Butter ,, . .	1	2	3	4	7	9
Cheese ,, . .	1	2	2	4	5	6
Tea, oz. . . .	25	31	43	60	75	78
Coffee, oz. . .	20	19	20	16	15	12
Wines, gallons .	0.4	0.4	0.4	0.7	0.7	0.6
Cotton, lbs. . .	20	20	40	35	40	43
Wool ,, . .	2	2	4	6	7	10

The principal exports from the United Kingdom * were in value thus :—

MILLIONS £ STERLING

	1854	1860	1870	1880	1889
Cotton goods . . .	31.7	52.0	71.4	75.6	70.5
Woollen goods . . .	10.7	16.0	26.6	20.6	25.7
Linen and jute . . .	5.1	6.6	10.4	9.3	9.8
Silken, &c.	1.2	2.4	2.6	2.7	4.2
Textiles	48.7	77.0	111.0	108.2	110.2
Iron.	11.7	12.4	26.5	29.7	29.2
Machinery	2.2	3.8	5.3	9.2	15.3
Cutlery	4.1	5.3	6.4	5.5	3.0
Metals	3.8	5.6	4.7	4.8	8.7
Hardware.	21.8	27.1	42.9	49.2	56.2
Coal		2.1	3.3	5.6	8.4	14.8
Sundries	24.6	28.5	40.1	57.3	66.9
Total . .	97.2	135.9	199.6	223.1	248.1

IRELAND

Dobbs gives returns for the 17th century ; the rest are from Blue-books :—

Date	Imports, £	Exports, £	Total, £
1665	336,000	358,000	694,000
1681	433,000	583,000	1,016,000
1695	392,000	296,000	688,000
1698	577,000	996,000	1,573,000
1725	1,000,000	1,400,000	2,400,000
1750–52. . . .	1,900,000	1,600,000	3,500,000
1760–62. . . .	2,300,000	1,700,000	4,000,000
1770–72. . . .	3,300,000	2,400,000	5,700,000
1780–82. . . .	3,100,000	2,700,000	5,800,000
1790–92. . . .	5,100,000	4,100,000	9,200,000
1800–2	4,100,000	5,600,000	9,700,000
1810	6,500,000	5,300,000	11,800,000
1820	6,000,000	6,300,000	12,300,000
1826	7,500,000	8,500,000	16,000,000

Since 1826 no separate tables of Irish trade have been kept. In 1725 the exports were as follows :—

						£
Meat	.	.	.	.	.	860,000
Linen	.	.	.	.	.	470,000
Grain &c.	.	.	.	.	.	70,000
						1,400,000

* This table is exclusive of colonial merchandise.

In the years 1796 to 1799 the annual average was as follows :—

From	Imports, £	To	Exports, £
Great Britain . .	4,010,000	Great Britain . .	4,970,000
Other countries .	1,270,000	Other countries .	810,000
Total .	5,280,000	Total .	5,780,000

The trade between Great Britain and Ireland in the same year was :—

	Imported from Great Britain		Exported to Great Britain
	£		£
Woollens . . .	690,000	Linen . .	2,490,000
Coal	160,000	Meat . . .	870,000
Cottons and silk	130,000	Butter . .	740,000
Iron and steel .	120,000	Wheat . .	440,000
Fish	100,000	Cattle . .	140,000
Sundries . . .	2,810,000	Sundries .	290,000
Total .	4,010,000	Total . . .	4,970,000

FRANCE

Official returns date continuously from 1716, yearly averages being as follows :—

Period	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1716–20	2,600,000	4,200,000	6,800,000	0 7 0
1721–30	3,200,000	4,600,000	7,800,000	0 7 6
1731–40	3,600,000	5,200,000	8,800,000	0 8 0
1741–50	4,100,000	7,700,000	11,800,000	0 10 6
1751–60	5,800,000	9,200,000	15,000,000	0 12 6
1761–70	6,600,000	12,400,000	19,000,000	0 16 0
1771–80	8,300,000	10,400,000	18,700,000	0 15 0
1781–90	12,100,000	14,200,000	26,300,000	1 1 0
1791–1800	17,000,000	14,500,000	31,500,000	1 3 0
1801–10	16,300,000	14,400,000	30,700,000	1 1 0
1811–20	11,300,000	16,100,000	27,400,000	0 18 0
1821–30	20,600,000	20,900,000	41,500,000	1 6 0
1831–40	28,500,000	30,700,000	59,200,000	1 16 0
1841–50	33,000,000	40,500,000	73,500,000	2 2 0
1851–60	62,000,000	65,000,000	127,000,000	3 10 0
1861–70	110,000,000	110,000,000	220,000,000	6 0 0
1871–80	157,000,000	140,000,000	297,000,000	8 0 0
1881–86	181,000,000	134,000,000	315,000,000	8 6 0
1889	167,000,000	144,300,000	311,300,000	8 3 0

The trade returns of 1800 showed thus :—

	Imports, £		Exports, £
Coffee . . .	1,500,000	Wine . . .	2,000,000
Raw cotton .	1,400,000	Silks . . .	1,600,000
Sundries . .	10,100,000	Sundries . .	7,200,000
Total . .	13,000,000	Total . .	10,800,000

The weight of merchandise imported and exported yearly averaged thus :—

Period	Imports, Tons	Exports, Tons	Total, Tons
1857–66 . . .	9,200,000	2,400,000	11,600,000
1867–76 . . .	12,800,000	4,300,000	17,100,000
1877–89 . . .	20,400,000	4,600,000	25,000,000

The statement of French trade for ten years ending 1886 shows thus :—

	Millions £ Sterling			
	Imports from	Exports to	Gross Trade	Ratio
Great Britain	248	358	606	19.4
Belgium	178	179	357	11.4
Germany	167	137	304	9.7
United States	171	114	285	9.1
Italy	144	81	225	7.2
Spain	118	62	180	5.8
Russia	99	9	108	3.5
Argentina	65	37	102	3.3
India	74	3	77	2.5
Turkey	53	19	72	2.3
Austria	41	10	51	1.6
Switzerland	46	91	137	4.4
China and Japan	49	...	49	1.5
Other countries	241	158	399	12.8
Total foreign	1,694	1,258	2,952	94.5
French colonies	91	80	171	5.5
Total	1,785	1,338	3,123	100.0

The imports according to quantity were as follows :—

	1876	1886	1877–86
Wine, million gallons	14	242	1,430
Wool, million lbs.	270	426	3,300
Grain, million bushels	40	57	770
Silk, million lbs.	29	29	240
Hides, tons	67,000	79,000	720,000
Cotton, million lbs.	350	302	3,100
Coal, tons	7,900,000	9,300,000	92,000,000
Fruit and seeds, tons	420,000	760,000	6,600,000
Coffee, tons	53,000	68,000	620,000
Flax, tons	41,000	56,000	710,000
Cheese and butter, tons	17,000	24,000	230,000
Copper, tons	30,000	23,000	260,000

The principal exports were in value thus :—

	1876	1886	Average, 1877–86	1889
	£	£	£	£
Woollen fabrics	12,700,000	15,100,000	14,100,000	13,400,000
Silk fabrics	11,800,000	9,700,000	11,000,009	9,900,000
Wines	12,600,000	13,400,000	12,800,000	12,800,000
Raw silk	6,900,000	5,900,000	6,100,000	5,400,000
Raw wool	3,000,000	5,300,000	4,200,000	6,200,000
Sugar	6,400,000	2,200,000	4,100,000	4,200,000
Hides and leather	11,200,000	11,600,000	12,400,000	12,200,000
Cotton manufac.	2,600,000	4,300,000	3,400,000	4,500,000
Clothing	3,600,000	3,100,000	3,100,000	3,500,000
Grain	5,800,000	1,200,000	2,700,000	3,300,000
Cheese and butter	4,400,000	3,600,000	3,900,000	4,400,000
Raw cotton	3,200,000	1,200,000	2,100,000	1,100,000
Eggs	1,800,000	1,100,000	1,200,000	1,100,000
Jewellery	2,200,000	2,000,000	2,400,000	2,400,000
Fruit	1,400,000	1,700,000	1,500,000	1,700,000
Metal wares	29,000,000	2,500,000	2,700,000	5,400,000
Haber-dashery	6,900,000	5,000,000	6,000,000	5,700,000
Sundries	43,600,000	41,100,000	40,100,000	47,200,000
Total	143,000,000	130,000,000	133,800,000	144,300,000

The principal imports were as follows :—

	1876	1886	Average, 1877–86	1889
	£	£	£	£
Wine	1,010,000	20,700,000	11,300,000	15,500,000
Wool	11,100,000	15,400,000	12,900,000	15,100,000
Grain	9,600,000	10,500,000	18,400,000	17,400,000
Silk	21,800,000	11,700,000	12,100,000	10,800,000
Hides	6,800,000	7,000,000	6,900,000	6,500,000
Cotton	9,200,000	6,400,000	7,900,000	7,400,000
Timber	8,100,000	5,800,000	8,400,000	6,200,000
Coal	6,900,000	5,000,000	6,300,000	5,400,000
Cattle and meat	7,400,000	6,400,000	8,600,000	4,800,000
Fruit and seeds	5,900,000	11,600,000	9,600,000	8,400,000
Coffee	4,300,000	4,100,000	3,800,000	5,100,000
Flax	2,000,000	2,200,000	2,600,000	2,400,000
Sundries	65,390,000	61,500,000	69,700,000	62,100,000
Total	159,500,000	168,300,000	178,500,000	167,000,000

The exports according to quantity were as follows :—

	1876	1886	1877–86
Wines, million gallons	84	64	640
Wool, million lbs.	46	108	730
Grain, million bushels	23	7	120
Cheese and butter, tons	43,000	34,000	370,000
Eggs, tons	33,000	21,000	220,000
Fruit „	44,000	64,000	520,000
Hides „	24,000	35,000	340,000
Sugar „	230,000	140,000	1,520,000
Raw cotton, million lbs.	120	56	770

The net imports averaged for ten years, 1877–86, as follows :—

	Quantity	Value, £ Sterling
Wines, gallons	79,000,000	6,400,000
Wool, lbs.	257,000,000	8,700,000
Grain, bushels	65,000,000	15,700,000
Silk, raw, lbs.	13,000,000	6,000,000
Hides, tons	38,000	4,000,000
Raw cotton, lbs.	233,000,000	5,800,000
Timber	...	7,200,000
Coal, tons	9,200,000	6,300,000
Cattle and meat	...	7,400,000
Fruit and seeds, tons	610,000	8,100,000
Coffee, tons	62,000	3,800,000
Sundries	...	72,300,000
Total	...	151,700,000

The French coasting trade in 1889 was 2,360,000 tons.

ALGERIA

Trade returns show as follows for 1888 :—

From	Imports, £	To	Exports, £	Total Trade, £
France	7,200,000	France	6,600,000	13 800,000
Other countries	2,200,000	Other countries	1,300,000	3,500,000
Total	9,400,000	Total	7,900,000	17,300.000

	Imports, £		Exports, £
Cotton goods .	1,100,000	Grain . . .	1,300,000
Leather . . .	600,000	Wine . . .	1,700,000
Hardware . .	300,000	Cattle . . .	1,400,000
Haberdashery	300,000	Wool . . .	800,000
Sundries . .	7,100,000	Sundries . .	2,700,000
Total .	9,400,000	Total .	7,900,000

The trade with Great Britain, imports and exports, reaches £900,000.

GERMANY

The *Répertoire Générale* gives the trade for 1822 as follows :—

	Imports, £	Exports, £	Total, £
Prussia	13,100,000	14,200,000	27,300,000
Other states . .	6,400,000	6,500,000	12,900,000
Total . .	19,500,000	20,700,000	40,200,000

In 1850, according to Levi's estimate, the total trade was :—

	£
Imports	22,000,000
Exports	20,000,000
Total .	42,000,000

This was much below the reality. We know that the trade of the Zollverein in 1856 reached 106 millions sterling, and the increase of six years could hardly have exceeded 50 per cent. The trade seems to have been as follows :—

Year	Millions £ Sterling			Per Inhabitant
	Imports	Exports	Total	
				£ s. d.
1822 . . .	19	21	40	1 10 0
1840 . . .	25	27	52	1 14 0
1850 . . .	34	36	70	2 2 0
1872 . . .	163	116	279	7 0 0
1880 . . .	142	152	294	6 11 0
1888 . . .	172	168	340	7 4 0
1889 . . .	204	163	367	7 16 0

The statement for German trade for seven years ending 1886 was as follows :—

	Millions £ Sterling			Ratio
	Imports from	Exports to	Gross Trade	
Great Britain .	151	167	318	14.9
Austria . . .	151	107	258	12.1
Russia . . .	125	61	186	8.7
Belgium . . .	89	57	146	6.8
France . . .	84	101	185	8.7
Holland . . .	81	83	164	7.7
Switzerland .	55	58	113	5.3
United States .	48	61	109	5.1
Italy	25	26	51	2.5
Other countries	254	348	602	28.2
Total . .	1,063	1,069	2,132	100.6

There is not much difference between the total value of imports and that of exports. The trade with Russia and Austria, however, shows a heavy excess of imports, which is counterbalanced by a surplus of exports to Great Britain, France, United States, and other countries.

The principal articles of import were as follows :—

	1876	1886	1877–86, Ten Years	Net Import
	£	£	Mill. £	Mill. £
Grain . .	29,800,000	10,300,000	222	133
Wool . .	10,400,000	10,900,000	104	78
Cotton .	10,200,000	8,800,000	93	78
Coffee . .	9,600,000	6,900,000	73	73
Cattle . .	8,000,000	4,700,000	63	6
Hides . .	3,900,000	4,600,000	44	44
Horses .	3,500,000	3,500,000	28	16
Petroleum	5,200,000	2,800,000	31	28
Silk, raw .	6,600,000	7,500,000	60	60
Tobacco .	4,100,000	3,200,000	33	29
Yarn . .	8,500,000	8,100,000	69	40
Wine . .	2,900,000	1,700,000	24	24
Sundries .	87,400,000	71,400,000	772	772
Total .	190,100,000	144,400,000	1,616	1,381

The principal exports were :—

	1876	1886	1877–86, Ten Years
	£	£	Mill. £
Woollen fabrics .	6,300,000	8,600,000	81
Silk fabrics . . .	2,800,000	9,000,000	71
Cotton fabrics . .	1,900,000	4,900,000	33
Sugar	1,900,000	7,100,000	64
Leather goods . .	3,400,000	7,600,000	56
Iron and machinery	5,500,000	7,500,000	80
Cattle	7,000,000	4,200,000	57
Yarn	2,700,000	3,100,000	29
Paper	800,000	2,500,000	18
Grain	11,100,000	3,100,000	89
Coal	1,600,000	4,000,000	28
Wool	3,300,000	2,000,000	26
Sundries	79,100,000	85,700,000	859
Total . . .	127,400,000	149,300,000	1,491

The trade returns for 1888 were as follows :—

	Imports, £		Exports, £
Textiles . . .	51,300,000	Textiles . .	53,800,000
Food	37,600,000	Food . . .	19,600,000
Cattle . . .	7,800,000	Metals . .	24,300,000
Metals . . .	15,900,000	Chemicals .	11,800,000
Chemicals . .	12,100,000	Leather . .	11,800,000
Tallow, &c. .	10,800,000	Machinery .	6,800,000
Sundries . .	36,300,000	Sundries . .	39,500,000
Total . .	171,800,000	Total . .	167,600,000

RUSSIA

The principal imports of European Russia were as follows :—

	1876	1886	1877–86, Ten Years, Millions Sterling	Net Imports, Millions Sterling
	£	£	£	£
Cotton . .	5,200,000	7,200,000	74	74
Wool . . .	1,700,000	1,900,000	24	9
Tea . . .	5,200,000	3,600,000	46	46
Iron and steel	5,100,000	1,900,000	34	32
Machinery .	2,700,000	1,400,000	25	25
Coal . . .	1,600,000	1,300,000	17	17
Chemicals .	800,000	1,300,000	19	19
Sundries . .	36,800,000	18,800,000	282	282
Total .	59,100,000	37,400,000	521	504

The principal exports of European Russia were as follows :—

	1876	1886	1877–86, Ten Years, Millions Sterling
	£	£	£
Wheat . . .	14,000,000	9,700,000	162
Rye	7,600,000	4,800,000	74
Oats . . .	3,300,000	2,600,000	45
Barley, &c. . .	2,200,000	4,600,000	42
All grain . .	27,100,000	21,700,000	323
Flax	5,100,000	4,300,000	70
Hemp . . .	1,200,000	1,200,000	18
Linseed . . .	3,200,000	1,500,000	31
Timber . . .	4,100,000	2,000,000	33
Wool	1,600,000	2,100,000	15
Cattle . . .	1,600,000	900,000	13
Sundries. . .	6,800,000	10,000,000	87
Total .	50,700,000	43,700,000	590

Exports of the whole Russian Empire at various dates were officially valued thus :—

Year	Grain, £	Sundries, £	Total, £
1830.	3,000,000	9,400,000	12,400,000
1840.	5,800,000	10,900,000	16,700,000
1860.	10,400,000	15,800,000	26,200,000
1870.	24,400,000	29,900,000	54,300,000
1880.	26,600,000	31,600,000	58,200,000
1886.	21,700,000	27,100,000	48,800,000

Official returns, allowing for discount on paper-money at various periods, may be summed up since 1742 thus :—

Date	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1742	3,600,000	4,700,000	8,300,000	0 8 0
1750	6,900,000	7,200,000	14,100,000	0 13 0
1760	7,400,000	9,900,000	17,300,000	0 15 0
1770	11,400,000	15,000,000	26,400,000	1 2 0
1780	15,500,000	19,700,000	35,200,000	1 7 0
1790	20,800,000	21,800,000	42,600,000	1 10 0
1802	14,100,000	15,800,000	29,900,000	0 16 0
1820–39	10,500,000	12,000,000	22,500,000	0 10 0
1840	11,200,000	15,200,000	26,400,000	0 11 0
1841–49	15,000,000	18,000,000	33,000,000	0 12 0
1850–59	21,000,000	23,000,000	44,000,000	0 15 0
1860	21,500,000	26,200,000	47,700,000	0 15 0
1870	48,900,000	54,300,000	103,200,000	1 6 0
1880	72,600,000	58,200,000	130,800,000	1 11 0
1886	42,700,000	48,800,000	91,500,000	1 1 0
1888	39,100,000	79,400,000	118,500,000	1 7 0

The statement for ten years ending 1886 shows as follows :—

	Millions £ Sterling			Ratio
	Imports from	Exports to	Gross Trade	
Germany	201	165	366	36.2
Great Britain . . .	123	169	292	28.9
Austria	23	31	54	5.3
France	18	48	66	6.5
Turkey	14	10	24	2.4
Italy	9	12	21	2.1
Holland	6	36	42	4.1
Sweden and Norway	4	16	20	2.0
Other countries . .	79	49	128	12.5
Total . .	477	536	1,013	100.0

The exports of grain since 1867 averaged in quantity as follows :—

	Millions of Bushels			
	1867–76	1877–86	1887	1888
Wheat . . .	50	67	75	122
Oats . . .	20	46	59	85
Rye	27	46	50	68
Barley . . .	6	20	34	58
Maize, &c. . .	7	16	28	34
Total .	110	195	246	367

The trade returns for European Russia in 1888 may be summed up thus :—

	Imports, £		Exports, £
Raw cotton .	6,800,000	Grain . . .	42,200,000
Wool . . .	2,500,000	Flax . . .	6,700,000
Tea	1,600,000	Seeds . . .	3,800,000
Machinery . .	1,600,000	Timber . .	3,800,000
Iron wares . .	1,500,000	Hemp . . .	1,700,000
Coal	1,300,000	Butter and eggs	1,500,000
Sundries . .	17,900,000	Sundries . .	13,000,000
Total . .	33,200,000	Total . .	72,700,000

AUSTRIA-HUNGARY

The following are the official returns :—

Year	Imports	Exports	Total	Per Inhab.
	£	£	£	£ s. d.
1831	6,800,000	7,900,000	14,700,000	0 12 0
1835	9,100,000	8,900,000	18,000,000	0 14 0
1840	11,000,000	10,800,000	21,800,000	0 15 6
1851	15,600,000	13,400,000	29,000,000	0 19 0
1860	20,900,000	26,500,000	47,400,000	1 10 0
1870	43,600,000	39,500,000	83,100,000	2 7 0
1880	51,100,000	56,300,000	107,400,000	2 16 0
1889	48,200,000	44,400,000	92,600,000	2 6 0

The principal exports of Austria-Hungary were :—

	1860	1870	1880	1885	Million £, 1877–86
	£	£	£	£	£
Timber	1,600,000	2,400,000	3,700,000	4,200,000	42
Grain	2,000,000	5,200,000	6,700,000	6,300,000	81
Fancy goods	1,800,000	4,400,000	4,300,000	5,200,000	56
Cattle	800,000	1,000,000	3,000,000	3,300,000	37
Leather goods	1,100,000	1,400,000	1,500,000	2,100,000	17
Textile goods	3,100,000	4,200,000	4,200,000	4,400,000	44
Sugar	...	...	4,900,000	4,000,000	47
Sundries	16,000,000	20,900,000	28,000,000	28,700,000	259
Total . .	26,500,000	39,500,000	56,300,000	58,200,000	583

Austro-Hungarian Imports	1860	1870	1880	1886	1877–86, Million £	Net Imports, Million £
	£	£	£	£	£	£
Raw cotton	2,900,000	3,800,000	3,600,000	3,800,000	37	34
Wool	1,100,000	1,400,000	3,100,000	2,700,000	30	14
Coffee	1,100,000	2,000,000	2,300,000	2,600,000	25	25
Tobacco	...	...	2,300,000	2,800,000	20	20
Hides	500,000	1,400,000	1,800,000	1,700,000	17	9
Silk, raw	500,000	1,100,000	1,300,000	1,600,000	13	13
Leather	500,000	1,400,000	1,600,000	1,300,000	16	16
Yarns	1,500,000	2,700,000	2,700,000	2,300,000	26	15
Flax and jute	...	...	1,000,000	1,500,000	12	12
Sundries	11,700,000	29,800,000	31,400,000	24,600,000	293	...
Total . .	20,900,000	43,600,000	51,100,000	44,900,000	491	...

Trade returns for 1887 may be summed up thus :—

	Imports, £		Exports, £
Cotton	4,700,000	Grain . .	7,800,000
Wool	3,600,000	Timber . .	4,600,000
Coffee	2,800,000	Sugar . .	3,700,000
Silk	1,600,000	Hardware .	3,000,000
Tobacco . . .	1,500,000	Woollens .	2,100,000
Yarn	2,600,000	Cattle . .	2,200,000
Hides and leather	2,700,000	Glass . .	1,700,000
Sundries . . .	27,900,000	Sundries .	31,000,000
Total . .	47,400,000	Total .	56,100,000

	Imports from	Exports to	Total Trade
	£	£	£
Germany . . .	30,200,000	33,300,000	63,500,000
Russia	2,100,000	1,500,000	3,600,000
Great Britain . .	1,600,000	900,000	2,500,000
Servia	1,200,000	1,000,000	2,200,000
Various	12,300,000	19,400,000	31,700,000
Total . .	47,400,000	56,100,000	103,500,000

The above includes the total foreign trade of both Austria and Hungary, in which only a small portion seems to fall to Hungary, since the returns for that kingdom for 1888, including trade with Austria, show :—

	Imports from	Exports to	Total Trade
	£	£	£
Austria	32,400,000	25,800,000	58,200,000
Foreign countries	6,300,000	11,400,000	17,700,000
Total . . .	38,700,000	37,200,000	75,900,000

Hungary exported grain worth £14,000,000 and cattle £5,000,000 : her imports included textiles worth £16,600,000 sterling.

ITALY

The trade of Genoa increased 80 per cent. from 1835 to 1867.* If we suppose a similar increase for Italy, the trade of the kingdom would have been 35 millions sterling in the former year, but it was doubtless much below that figure. Levi's estimate for 1850 was only 11 millions for imports, and 8 millions for exports, which was certainly too low. We have regular statistics from 1861 :—

Year	Million £ Sterling			Per Inhabitant
	Imports	Exports	Total	
				£ s. d.
1835 . . .	13	11	24	1 7 0
1850 . . .	23	15	38	1 18 0
1861 . . .	33	19	52	2 7 0
1870 . . .	36	30	66	2 13 0
1880 . . .	47	44	91	3 3 0
1886 . . .	58	41	99	3 6 0
1889 . . .	56	38	94	3 3 0

The aggregate for ten years, 1877–86, was :—

	Millions £ Sterling			Ratio
	Imported from	Exported to	Gross Trade	
France . . .	136	194	330	34.0
Great Britain .	116	36	152	15.6
Austria . . .	84	58	142	14.4
Germany . .	33	27	60	6.2
Switzerland .	21	44	65	6.7
Russia . . .	24	9	33	3.4
United States .	24	20	44	4.5
India . . .	27	8	35	3.6
Other countries	62	48	110	11.6
Total . .	527	444	971	100.0

This table includes bullion both ways.

* From £8,200,000 to £14,400,000.

Imports of Italy	1862	1870	1880	1886	1877–86, Millions Sterling	Net Imports, Millions Sterling
	£	£	£	£	£	£
Grain	3,000,000	3,200,000	3,600,000	8,100,000	49	18
Coal	700,000	1,500,000	2,300,000	2,700,000	23	23
Timber	800,000	1,000,000	1,200,000	2,400,000	15	15
Raw cotton . . .	300,000	1,400,000	3,300,000	3,000,000	30	22
Wool	500,000	500,000	1,200,000	1,300,000	13	13
Silk	5,000,000	2,200,000	2,100,000	2,000,000	18	...
Machinery . . .	...	200,000	1,600,000	1,700,000	19	19
Textile goods . .	...	4,800,000	4,400,000	4,900,000	52	47
Hides	500,000	700,000	1,100,000	1,400,000	14	14
Sundries	22,400,000	20,300,000	26,600,000	30,700,000	280	...
Total . .	33,200,000	35,800,000	47,400,000	58,200,000	505	...

The principal exports were :—

	1862	1870	1880	1886	1877–86, Millions Sterling
	£	£	£	£	£
Silk	8,200,000	9,200,000	11,600,000	12,600,000	114
Wine	400,000	400,000	2,600,000	3,300,000	20
Oil	2,600,000	3,400,000	3,400,000	3,100,000	37
Fruit	1,200,000	1,000,000	1,400,000	1,500,000	16
Eggs	60,000	160,000	1,400,000	1,200,000	13
Cattle	500,000	900,000	1,200,000	700,000	13
Hemp	400,000	800,000	900,000	1,000,000	11
Sulphur	1,200,000	1,000,000	1,300,000	1,000,000	12
Sundries	8,540,000	13,340,000	20,300,000	16,400,000	190
Total . .	23,100,000	30,200,000	44,100,000	40,800,000	426

The trade of 1888 may be summed up thus :—

	Imports, £		Exports, £
Grain . . .	5,900,000	Silk . . .	11,600,000
Coal . . .	3,600,000	Oil . . .	2,500,000
Cotton . . .	3,400,000	Wine . . .	2,200,000
Textiles . . .	2,500,000	Fruit . . .	1,700,000
Machinery . .	1,600,000	Hemp . . .	1,100,000
Timber . . .	1,200,000	Sulphur . .	900,000
Sundries . .	28,800,000	Sundries . .	15,600,000
Total . .	47,000,000	Total . .	35,600,000

SPAIN

The official returns show as follows :—

Year	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1795	8,800,000	4,800,000	13,600,000	1 7 0
1827	3,800,000	2,900,000	6,700,000	0 12 0
1850	5,900,000	4,800,000	10,700,000	0 15 0
1860	14,500,000	10,700,000	25,200,000	1 11 0
1872	21,100,000	20,100,000	41,200,000	2 11 0
1880	24,900,000	25,500,000	50,400,000	3 3 0
1885	29,500,000	27,500,000	57,000,000	3 7 0
1888	28,600,000	30,500,000	59,100,000	3 8 0

The exports of 1795 were as follows :—

	£
Wool	1,500,000
Wine	1,600,000
Sundries	1,700,000
Total . .	4,800,000

The statement for ten years ending December 1885 showed as follows :—

	Million £ Sterling			
	Imports from	Exports to	Gross Trade	Ratio
France	78	85	163	31.3
Great Britain . . .	61	77	138	26.6
Germany	20	3	23	4.4
United States . . .	33	7	40	7.7
Cuba	11	25	36	7.0
Other countries . .	72	47	119	23.0
Total . .	275	244	519	100.0

The above table includes bullion both ways. Notwithstanding heavy import duties, the imports surpassed exports. In 1888, however, there was a surplus of exports.

The imports were as follows :—

	1860	1872	1880	1885	1876–85, Millions Sterling	Net Imports, Millions Sterling
	£	£	£	£	£	£
Grain	...	200,000	300,000	900,000	10	4
Brandy	200,000	200,000	1,700,000	2,200,000	13	13
Cotton	1,300,000	2,600,000	3,200,000	2,600,000	29	29
Textiles	1,500,000	1,000,000	1,700,000	2,100,000	19	19
Sugar	1,100,000	1,100,000	900,000	1,200,000	11	11
Coal	300,000	700,000	800,000	1,000,000	9	9
Fish	500,000	700,000	700,000	1,200,000	8	8
Machinery . . .	300,000	700,000	2,000,000	1,400,000	18	18
Sundries . . .	9,300,000	13,900,000	13,600,000	16,900,000	143	...
Total . .	14,500,000	21,100,000	24,900,000	29,500,000	260	...

The above is of merchandise only, excluding bullion. The exports were as follows :—

	1860	1872	1880	1885	1876–85, Millions Sterling
	£	£	£	£	£
Wine	3,200,000	6,800,000	10,000,000	12,600,000	92
Minerals . . .	...	3,600,000	6,400,000	4,800,000	53
Fruit	...	2,100,000	1,600,000	1,900,000	19
Oil	200,000	600,000	500,000	1,600,000	7
Sundries . . .	7,300,000	7,000,000	7,000,000	6,600,000	70
Total . .	10,700,000	20,100,000	25,500,000	27,500,000	241

The trade of 1888 may be summed up thus :—

	Imports, £		Exports, £
Cotton . . .	2,300,000	Wine . . .	12,100,000
Grain . . .	2,400,000	Metals and } minerals }	6,800,000
Coal . . .	1,200,000		
Textiles . . .	2,000,000	Fruit	2,300,000
Machinery } and iron . }	1,600,000	Cork . . .	800,000
		Cattle . . .	700,000
Timber . . .	1,200,000	Wool . . .	600,000
Sugar . . .	1,200,000	Oil	400,000
Sundries . .	16,700,000	Sundries . .	6,800,000
Total . .	28,600,000	Total . .	30,500,000

PORTUGAL

Official returns are as follows :—

Year	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1806	7,100,000	7,600,000	14,700,000	4 15 0
1842	2,400,000	1,700,000	4,100,000	1 4 0
1850	3,100,000	2,200,000	5,300,000	1 9 0
1870	5,700,000	4,600,000	10,300,000	2 11 0
1880	7,900,000	5,600,000	13,500,000	3 1 0
1886	10,500,000	5,700,000	16,200,000	3 10 0
1888	10,600,000	7,200,000	17,800,000	4 0 0

The trade of 1806 was probably abnormally high on account of the war with Spain. There has been a steady increase since 1842.

The returns for imports are as follows :—

	1872	1880	1886	1877–86, Average
	£	£	£	£
Grain . . .	400,000	1,200,000	1,100,000	1,200,000
Textile goods	1,500,000	1,200,000	1,400,000	1,300,000
Cotton and } wool . }	200,000	300,000	500,000	300,000
Fish . . .	300,000	300,000	400,000	300,000
Coal . . .	200,000	300,000	300,000	300,000
Sundries . .	3,900,000	6,800,000	6,800,000	4,700,000
Total .	6,500,000	7,900,000	10,500,000	8,100,000

The exports were as follows :—

	1872	1880	1886	1877–86
	£	£	£	£
Wine . . .	2,000,000	2,200,000	3,700,000	2,400,000
Copper . .	400,000	400,000	...	300,000
Cork . . .	200,000	600,000	500,000	500,000
Cattle . .	300,000	400,000	200,000	400,000
Fruit . . .	200,000	200,000	100,000	200,000
Sundries . .	2,100,000	1,800,000	1,200,000	1,400,000
Total .	5,200,000	5,600,000	5,700,000	5,200,000

The statement for ten years ending December 1882 was as follows :—

	Millions £ Sterling			Ratio
	Imports from	Exports to	Total	
Great Britain . . .	34	27	61	48.0
France	10	4	14	11.0
Brazil	5	10	15	11.8
United States . . .	7	1	8	6.3
Spain	5	3	8	6.3
Other countries . .	15	6	21	16.6
Total . . .	76	51	127	100.0

SWEDEN

Official returns of merchandise are as follows :—

Year	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1801	1,400,000	1,000,000	2,400,000	1 1 0
1805	1,500,000	1,700,000	3,200,000	1 6 0
1831–40	1,300,000	1,600,000	2,900,000	1 1 0
1850	3,300,000	3,700,000	7,000,000	2 1 0
1860	4,400,000	4,800,000	9,200,000	2 8 0
1870	7,800,000	8,400,000	16,200,000	3 18 0
1880	15,100,000	13,100,000	28,200,000	6 5 0
1885	18,700,000	13,700,000	32,400,000	6 10 0
1887	16,300,000	13,500,000	29,800,000	6 0 0

A statement for ten years ending December 1885 shows thus :—

	Millions £ Sterling			Ratio
	Imports from	Exports to	Gross Trade	
Great Britain . . .	44	63	107	37.2
Germany	40	9	49	17.1
Denmark	28	13	41	14.3
Norway	9	4	13	4.5
France	4	15	19	6.6
Other countries . .	37	21	58	20.3
Total . .	162	125	287	100.0

The above table includes bullion both ways.
The imports were as follows of merchandise :—

	1875	1885	1876–85	Net Imports
	£	£	Mill. £	Mill. £
Textile goods .	1,500,000	2,000,000	16	15
Grain	1,100,000	2,000,000	16	...
Cotton, wool, } and yarns }	1,100,000	1,300,000	11	11
Coal	800,000	900,000	8	8
Sundries . . .	10,000,000	12,500,000	107	...
Total . .	14,500,000	18,700,000	158	...

The exports were as follows :—

	1875	1885	1876–85
	£	£	Million £
Timber	4,700,000	5,100,000	50
Iron	2,100,000	1,900,000	17
Grain	1,800,000	1,500,000	18
Butter	400,000	1,100,000	6
Sundries . . .	2,300,000	4,100,000	30
Total . .	11,300,000	13,700,000	121

The trade of 1887 may be summed up thus :—

	Imports, £		Exports, £
Textiles . . .	2,700,000	Timber . .	5,400,000
Grain . . .	1,700,000	Butter, &c. .	2,400,000
Fibre . . .	1,600,000	Metals . . .	1,800,000
Coal . . .	1,200,000	Hardware . .	400,000
Sundries . .	9,100,000	Sundries . .	3,500,000
Total . .	16,300,000	Total . .	13,500,000

NORWAY

Previously to 1872 the value of exports was not recorded, but merely the quantities. The trade has been approximately as follows :—

Year	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1830	700,000	800,000	1,500,000	1 8 0
1850	1,600,000	1,800,000	3,400,000	2 9 0
1860	2,400,000	2,200,000	4,600,000	3 0 0
1872	7,600,000	5,800,000	13,400,000	7 10 0
1880	8,400,000	6,100,000	14,500,000	7 3 0
1888	8,800,000	6,800,000	15,600,000	7 15 0

The imports were as follows :—

	1876	1886	1877–86
	£	£	Millions £
Grain	2,000,000	1,500,000	18
Textile goods .	800,000	800,000	8
Hardware . . .	700,000	500,000	5
Sundries . . .	5,800,000	4,700,000	54
Total . .	9,300,000	7,500,000	85

The exports were as follows :—

	1876	1886	1877–86
	£	£	Millions £
Timber . . .	2,400,000	1,600,000	19
Fish	2,400,000	1,800,000	19
Sundries . . .	1,800,000	2,300,000	22
Total . .	6,600,000	5,700,000	60

The statement for ten years ending December 1886 shows :—

	Millions £ Sterling			Ratio
	Imports from	Exports to	Gross Trade	
Great Britain .	22	20	42	29.0
Germany . .	25	8	33	22.7
Sweden . . .	9	7	16	11.0
Other countries	29	25	54	37.3
Total . .	85	60	145	100.0

The trade of 1888 may be summed up thus :—

	Imports, £		Exports, £
Grain . . .	1,700,000	Fish	2,300,000
Textiles . .	1,000,000	Timber . . .	1,800,000
Hardware . .	700,000	Metals and minerals	500,000
Sundries . .	5,400,000	Sundries	2,200,000
Total . .	8,800,000	Total . . .	6,800,000

DENMARK

Official returns show as follows :—

Year	Imports	Exports	Gross Trade	Per Inhab.
	£	£	£	£ s. d.
1789	950,000	1,020,000	1,970,000	...
1850	4,700,000	3,100,000	7,800,000	5 5 0
1872	10,800,000	8,100,000	18,900,000	10 8 0
1880	11,500,000	9,800,000	21,300,000	10 15 0
1888	15,200,000	10,700,000	25,900,000	13 0 0

The exports in 1836 were as follows :—

	Quantity		Value, £
Wheat, bushels . . .	800,000	...	150,000
Barley and rye, bushels .	2,300,000	...	250,000
Butter, barrels . . .	70,000	...	400,000
Cattle, No.	40,000	...	300,000
Sundries	...	...	860,000
Total .			1,960,000

The imports of merchandise in ten years ending 1885 were :—

	1875	1885	1876–85
Coal, tons . . .	500,000	900,000	7,000,000
Grain ,, . . .	65,000	145,000	1,150,000
Iron goods, tons .	50,000	55,000	510,000
Oil	8,000	19,000	16,000
Salt	25,000	25,000	240,000
Sugar	26,000	20,000	270,000

The exports of Denmark were :—

	1875	1885	1876–85
Grain, tons . . .	240,000	150,000	2,100,000
Cattle, No. . . .	340,000	350,000	4,200,000
Bacon, tons . .	5,000	16,000	75,000
Butter ,, . .	13,000	18,000	145,000

It will be observed that the exports of grain much exceeded the imports, the net export for ten years being one million tons, or 40 million bushels.
The countries trading with Denmark in the period of ten years ending December 1885 were :—

	Million £ Sterling			Ratio
	Imports from	Exports to	Total	
Germany	49	31	80	34.8
Great Britain . . .	30	37	67	29.1
Sweden	16	15	31	13.4
Other countries . .	38	15	53	22.7
Total . .	133	98	231	100.0

The trade of 1888 may be summed up thus :—

	Imports	£		Exports	£
Textiles	. . .	2,200,000	Butter and eggs .		5,100,000
Grain	. . . .	1,600,000	Cattle		1,600,000
Metals	. . .	1,300,000	Grain		900,000
Sundries	. . .	10,100,000	Sundries . . .		3,100,000
Total	.	15,200,000	Total	.	10,700,000

HOLLAND

Official statements are as follows :—

Year	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1843	15,200,000	11,400,000	26,600,000	8 10 0
1850	22,000,000	18,000,000	40,000,000	11 5 0
1860	25,300,000	20,200,000	45,500,000	12 10 0
1870	38,800,000	31,800,000	70,600,000	18 10 0
1880	69,000,000	52,100,000	121,100,000	30 5 0
1888	106,000,000	92,900,000	198,900,000	45 0 0

More than half the trade is in a manner goods in transit, since we see that the net imports are less than half the gross imports.

The imports of Holland were as follows :—

	1861	1870	1880	1886	1877–86	Net Import
	£	£	£	£	Millions £	Millions £
Chinchona . . .	600,000	500,000	2,500,000	8,800,000	46	4
Grain	5,000,000	5,500,000	10,300,000	15,000,000	115	57
Iron	1,400,000	2,000,000	7,700,000	8,000,000	78	21
Coal	1,400,000	1,500,000	2,500,000	3,000,000	26	26
Coffee	2,700,000	3,500,000	3,500,000	3,100,000	37	12
Cotton and yarn . .	3,800,000	4,000,000	4,200,000	3,800,000	42	15
Wool and yarn . . .	1,600,000	2,200,000	1,700,000	2,900,000	21	5
Timber	800,000	900,000	1,800,000	1,800,000	19	19
Lard	...	...	2,300,000	2,400,000	20	17
Sugar	3,300,000	4,600,000	2,800,000	2,500,000	30	7
Petroleum . . .	...	900,000	1,000,000	1,700,000	12	12
Sundries	6,700,000	13,200,000	28,700,000	36,400,000	335	...
Total . .	27,300,000	38,800,000	69,000,000	89,400,000	781	...

The exports of Holland were as follows :—

	1861	1870	1880	1886	1877–86
	£	£	£	£	Million £
Chinchona	500,000	400,000	2,400,000	9,100,000	42
Iron	900,000	1,400,000	5,700,000	4,800,000	57
Butter	1,200,000	1,400,000	2,400,006	4,700,000	29
Coffee	2,300,000	2,900,000	2,400,000	2,700,000	25
Sugar	2,700,000	3,800,000	2,200,000	2,500,000	23
Cattle	700,000	800,000	1,100,000	1,100,000	11
Cotton and yarn . .	3,100,000	3,100,000	2,600,000	2,400,000	27
Wool and yarn . .	1,400,000	1,800,000	1,200,000	2,500,000	16
Grain	1,500,000	2,100,000	5,200,000	7,800,000	58
Sundries	7,200,000	14,500,000	29,300,000	50,400,000	300
Total . . .	21,000,000	31,800,000	52,100,000	78,900,000	588

The statement for ten years ending December 1886 showed :—

	Million £ Sterling			Ratio
	Imports from	Exports to	Total	
Germany . . .	227	267	494	35.5
Great Britain . .	207	140	347	25.0
Belgium . . .	107	92	199	14.3
Java	58	37	95	6.8
United States . .	48	17	65	4.7
Russia . . .	57	6	63	4.5
Other countries .	92	34	126	9.2
Total . .	796	593	1,389	100.0

The above includes bullion both ways.

The summary for ten years shows that imports exceeded exports by 203 millions sterling. This excess is to be observed in the trade of Holland with all countries except Germany. The largest excess is in respect of Russia, the imports from which are ten times the exports thither. Trade with the United States is also very unequal.

The trade of 1888 may be summed up thus :—

	Imports, £		Exports, £
Grain . . .	16,300,600	Drugs	13,000,000
Drugs . . .	16,400,000	Textiles . . .	9,500,000
Iron and steel .	12,000,000	Grain	7,700,000
Textiles . .	9,000,000	Butter and cheese	4,900,000
Sundries . .	52,300,000	Sundries . . .	57,800,000
Total . .	106,000,000	Total . . .	92,900,000

BELGIUM

The values of the principal imports at various dates were as follows :—

	1840	1850	1860	1870	1880	1887
	£	£	£	£	£	£
Grain	400,000	200,000	2,400,000	2,900,000	7,400,000	6,600,000
Wool	500,000	700,000	2,100,000	3,500,000	7,400,000	3,100,000
Hides	100,000	200,000	1,900,000	2,400,000	2,600,000	2,900,000
Flax	...	200,000	600,000	2,200,000	2,800,000	2,000,000
Cattle	100,000	100,000	600,000	1,100,000	2,300,000	1,800,000
Coffee	1,000,000	900,000	1,300,000	1,200,000	1,800,000	1,600,000
Meat	...	...	...	700,000	3,600,000	2,000,000
Eggs	...	...	...	...	1,300,000	1,300,000
Cotton	600,000	700,000	800,000	1,400,000	1,700,000	1,000,000
Sundries	5,500,000	6,400,000	10,900,000	21,400,000	36,300,000	34,900,000
Total . .	8,200,000	9,400,000	20,600,000	36,800,000	67,200,000	57,200,000

The weight of certain imports was as follows :—

	Tons					
	1840	1850	1860	1870	1880	1887
Coal	21,000	9,000	97,000	229,000	937,000	1,025,000
Ores	...	...	1,000	569,000	922,000	1,452,000
Grain	92,000	53,000	243,000	315,000	786,000	1,001,000
Rice	4,000	6,000	27,000	35,000	62,000	76,000
Meat	3,000	3,000	22,000	52,000	133,000	95,000
Iron	...	...	2,000	91,000	251,000	175,000
Salt	26,000	32,000	40,000	49,000	100,000	115,000
Flax	1,000	4,000	10,000	41,000	41,000	50,000
Wool	3,000	4,000	14,000	42,000	49,000	44,000
Cotton	9,000	10,000	15,000	16,000	23,000	23,000
Sugar	25,000	25,000	21,000	24,000	23,000	14,000
Coffee	19,000	17,000	19,000	22,000	23,000	19,000
Wine, gallons	1,700,000	2,100,000	3,200,000	3,100,000	4,500,000	4,200,000

Official reports show as follows :—

Period	Imports	Exports	Gross Trade	Per Inhab.		
	Mill. £	Mill. £	Mill. £	£	s.	d.
1831–40 . .	8	6	14	4	0	0
1841–50 . .	13	12	25	5	15	0
1851–60 . .	20	17	37	8	0	0
1861–70 . .	30	24	54	10	10	0
1871–80 . .	56	44	100	19	0	0
1881–86 . .	59	51	110	20	0	0
1850 . . .	10	11	21	4	14	0
1860 . . .	21	19	40	8	10	0
1870 . . .	37	28	65	13	0	0
1880 . . .	67	49	116	21	10	0
1886 . . .	53	47	100	18	0	0
1888 . . .	61	50	111	18	10	0

Exports	1860	1870	1880	1886
	£	£	£	£
Yarn . . .	1,200,000	2,500,000	5,200,000	5,300,000
Coal . . .	2,200,000	2,400,000	3,300,000	2,800,000
Textile goods	3,100,000	2,500,000	3,100,000	2,600,000
Flax . . .	1,000,000	2,000,000	2,700,000	2,600,000
Iron goods .	1,000,000	2,400,000	3,400,000	3,000,000
Sugar . . .	...	900,000	1,300,000	1,000,000
Glass . . .	500,000	600,000	2,000,000	2,000,000
Grain . . .	...	...	4,800,000	2,200,000
Hides . . .	1,200,000	1,400,000	1,500,000	2,200,000
Stone . . .	...	...	2,300,000	2,300,000
Sundries . .	8,600,000	12,900,000	19,100,000	21,300,000
Total .	18,800,000	27,600,000	48,700,000	47,300,000

The averages of imports and exports for ten years ending 1886 were :—

	Gross Imports, £	Net Imports, £		Exports, £
Grain . . .	11,400,000	7,400,000	Yarn . .	4,600,000
Wool . . .	5,000,000	5,000,000	Coal . .	2,800,000
Meat . . .	3,600,000	3,600,000	Textiles .	2,700,000
Timber . .	1,800,000	1,800,000	Flax . .	2,700,000
Flax . . .	3,400,000	700,000	Iron wares	3,800,000
Cotton . .	1,400,000	1,400,000	Sugar .	1,400,000
Minerals . .	2,900,000	2,900,000	Glass . .	1,900,000
Textile goods	1,900,000	...	Grain . .	4,000,000
Coffee . .	1,700,000	1,700,000	Hides .	1,800,000
Hides . .	2,300,000	500,000	Stone . .	2,500,000
Sundries . .	24,700,000	...	Sundries .	20,900,000
Total .	60,100,000	...	Total . .	49,100,000

The statement for ten years ending Dec. 1886 showed :—

	Millions £ Sterling			Ratio
	Imports from	Exports to	Gross Trade	
France	122	151	273	25.0
Great Britain . . .	81	99	180	16.5
Holland	84	66	150	13.8
Germany	77	91	168	15.4
United States . . .	72	13	85	7.7
Argentine Republic .	19	4	23	2.2
Other countries . .	146	67	213	19.4
Total . .	601	491	1,092	100.0

The weight of exported goods was as follows :—

	1840	1850	1860	1870	1880	1887
Coal, tons	1,000,000	2,000,000	3,400,000	3,800,000	5,400,000	5,500,000
Iron ,, ...	17,000	109,000	104,000	251,000	314,000	416,000
Sugar ,, ...	65,000	66,000	35,000	54,000	88,000	130,000
Flax ,, ...	...	...	6,000	5,000	10,000	41,000
Wool ,, ...	6,000	11,000	17,000	23,000	28,000	2,000

The trade of 1888 may be summed up thus :—

	Imports, £		Exports, £
Grain . . .	10,500,000	Yarn	5,400,000
Fibre . . .	7,400,000	Fibre	3,200,000
Meat and cattle	3,500,000	Coal	3,200,000
Timber . . .	2,800,000	Grain	2,800,000
Chemicals . .	2,700,000	Textiles	2,600,000
Sundries .	34,500,000	Iron & machinery	4,400,000
		Sundries . . .	28,200,000
Total . . .	61,400,000	Total . .	49,800,000

SWITZERLAND

We have returns since 1855, viz. :—

Year	Imports	Exports	Total
	£	£	£
1855 . . .	14,400,000	19,600,000	34,000,000
1863 . . .	18,400,000	16,800,000	35,200,000
1888 . . .	33,100,000	26,900,000	60,000,000

	Imports, £				Exports, £	
	1855	**1886**			**1855**	**1886**
Raw silk . . .	6,800,000	5,500,000	Clocks . . .		1,900,000	3,300,000
Grain	2,300,000	3,600,000	Lace			3,700,000
Textile goods . .	1,000,000	1,300,000	Silks	12,100,000	3,000,000
Cattle	600,000	1,700,000	Ribbons . . .			1,300,000
Raw cotton . . .	600,000	1,100,000	Cheese . . .		400,000	1,500,000
Sugar	400,000	1,000,000	Cotton goods . .	2,000,000	2,800,000
Sundries . . .	2,700,000	17,700,000	Sundries . . .		3,200,000	11,100,000
Total . . .	14,400,000	31,900,000	Total . . .		19,600,000	26,700,000

The returns for 1885 and 1886 show thus, two years aggregate :—

MILLIONS £

	Imports from	Exports to	Gross Trade	Ratio
France . . .	15	11	26	21.8
Italy	9	5	14	12.0
Great Britain . .	4	8	12	10.1
Austria . . .	6	3	9	7.5
Germany . . .	20	13	33	27.7
United States . .	2	7	9	7.5
Other countries .	6	10	16	13.4
Total . .	62	57	119	100.0

GREECE

Official returns of merchandise show as follows :—

Year	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1861	1,700,000	1,000,000	2,700,000	2 1 0
1870	3,100,000	1,400,000	4,500,000	3 1 0
1880	4,100,000	1,500,000	5,600,000	3 6 0
1888	4,000,000	3,400,000	7,400,000	3 15 0

The import trade was as follows :—

	1861	1870	1875	1888
	£	£	£	£
Grain . . .	220,000	650,000	1,100,000	1,400,000
Textile goods	360,000	540,000	600,000	800,000
Sundries . .	1,120,000	1,910,000	2,400,000	1,800,000
Total .	1,700,000	3,100,000	4,100,000	4,000,000

The exports were as follows :—

	1861	1870	1875	1888
	£	£	£	£
Fruit . . .	580,000	720,000	1,500,000	1,900,000
Oil	...	...	470,000	100,000
Sundries . .	420,000	680,000	730,000	1,400,000
Total .	1,000,000	1,400,000	2,700,000	3,400,000

The countries trading with Greece in 1888 showed thus :—

	Imports from	Exports to	Total Trade
	£	£	£
Great Britain . .	1,100,000	1,400,000	2,500,000
France	400,000	600,000	1,000,000
Austria	500,000	300,000	800,000
Various . . .	2,000,000	1,100,000	3,100,000
Total . .	4,000,000	3,400,000	7,400,000

TURKEY

Official returns are as follows :—

	Imports	Exports	Total
	£	£	£
1881	16,100,000	7,600,000	23,700,000
1889	19,500,000	13,500,000	33,000,000

Judging by the proportion of British trade with Turkey, the returns for the Ottoman Empire (excluding Egypt) should have been :—

Year	£ Sterling		
	Imports	Exports	Total
1854 . . .	8,000,000	7,000,000	15,000,000
1860 . . .	12,000,000	9,000,000	21,000,000
1870 . . .	19,000,000	20,000,000	39,000,000
1880 . . .	16,000,000	8,000,000	24,000,000
1879 . . .	19,500,000	13,500,000	33,000,000

The trade of 1888 may be summed up thus :—

	Imports, £		Exports, £
Cottons . . .	3,000,000	Fruit . . .	2,300,000
Linens . . .	800,000	Silk . . .	1,200,000
Woollens . .	700,000	Grain . . .	700,000
Sugar . . .	1,200,000	Wool . . .	600,000
Grain . . .	1,400,000	Mohair . .	500,000
Coffee . . .	700,000	Opium . .	400,000
Sundries . .	13,200,000	Sundries . .	7,800,000
Total .	21,000,000	Total .	13,500,000

The countries trading with Turkey were :—

	Imports from	Exports to	Total Trade
	£	£	£
Great Britain . .	8,500,000	3,600,000	12,100,000
Austria	3,800,000	1,000,000	4,800,000
France	2,400,000	4,200,000	6,600,000
Russia	2,200,000	200,000	2,400,000
Various . . .	4,100,000	4,500,000	8,600,000
Total . .	21,000,000	13,500,000	34,500,000

ROUMANIA

Official returns are as follows :—

Year	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1872	4,400,000	6,700,000	11,100,000	2 4 0
1880	10,200,000	8,800,000	19,000,000	3 14 0
1887	12,600,000	10,600,000	23,200,000	3 12 0

The statement for ten years ending December 1885 showed thus :—

MILLIONS £ STERLING

	Imports from	Exports to	Total	Ratio
Austria . . .	54	30	84	42.4
Great Britain .	20	24	44	22.2
Germany . .	13	1	14	7.1
France . . .	9	8	17	8.6
Turkey . . .	5	7	12	6.1
Other countries	10	17	27	13.6
Total . .	111	87	198	100.0

The imports were as follows :—

	1880	1885	1880-85	1887
	£	£	£	£
Textile goods	1,600,000	1,800,000	1,700,000	5,500,000
Cotton yarn	1,000,000	400,000	700,000	...
Shoes and } leather }	500,000	800,000	700,000	700,000
Sundries . .	7,100,000	7,700,000	6,800,000	6,400,000
Total . .	10,200,000	10,700,000	9,900,000	12,600,000

The exports were as follows :—

	1880	1885	1880-85	1887
	£	£	£	£
Grain . .	6,000,000	6,800,000	6,200,000	8,600,000
Sundries .	2,800,000	3,100,000	2,700,000	2,000,000
Total . .	8,800,000	9,900,000	8,900,000	10,600,000

UNITED STATES

TRADE WITH ALL COUNTRIES, MILLIONS STERLING

	Gross Trade			Net Trade			Per Inhabitant
	Imports	Exports	Total	Imports	Exports	Total	
	£	£	£	£	£	£	£ s. d.
1791-1800	12	10	22	8	6	14	3 3 0
1801-10	19	16	35	12	8	20	3 9 0
1811-20	17	13	30	14	10	24	2 15 0
1821-30	15	15	30	12	11	23	2 2 0
1831-40	25	21	46	22	18	40	2 13 0
1841-50	25	25	50	23	23	46	2 6 0
1851-60	59	52	111	56	48	104	3 17 0
1861-70	69	53	122	66	50	116	3 6 0
1871-80	111	124	235	110	121	231	5 16 0
1881-86	137	161	298	135	156	291	5 10 0
1790	5	4	9	5	4	9	2 6 0
1800	19	15	34	11	6	17	3 5 0
1810	18	14	32	12	9	21	2 18 0
1820	15	14	29	12	11	23	2 8 0
1830	13	15	28	10	12	22	1 15 0
1840	20	26	46	18	23	41	2 6 0
1850	36	30	66	34	28	62	2 14 0
1860	74	70	144	70	66	136	4 8 0
1870	90	81	171	87	78	165	4 5 0
1880	138	174	312	136	172	308	6 3 0
1889	154	166	320	...	...	...	5 0 0

The above is of merchandise only, excluding bullion. Official records of gross trade, including re-shipments, and of the net trade of the Union, as well as of the Colonies with Great Britain before Independence, are shown as follows :—

Period	Imports from Great Britain	Exports to Great Britain	Total	Per Inhabitant
	£	£	£	£ s. d.
1700-10	267,000	266,000	533,000	1 16 0
1711-20	366,000	393,000	759,000	1 5 0
1721-30	471,000	579,000	1,050,000	1 2 0
1731-40	660,000	670,000	1,330,000	1 4 0
1741-50	813,000	709,000	1,522,000	1 7 0
1751-60	1,577,000	803,000	2,380,000	1 10 0
1761-70	1,763,000	1,045,000	1,808,000	0 15 0
1771-80	1,331,000	744,000	2,075,000	0 14 0
1785	2,308,000	894,000	3,202,000	1 0 0

The proportion of trade with Great Britain in the commerce of the United States since 1790 is shown as follows :—

Year	Millions £ Sterling			Ratio		
	Trade with Great Britain	With other Countries	Total	Great Britain	Other Countries	Total
1790	5	4	9	55	45	100
1800	15	19	34	44	56	100
1810	16	16	32	50	50	100
1820	15	14	29	52	48	100
1830	14	14	28	50	50	100
1840	23	23	46	50	50	100
1850	32	34	66	48	52	100
1860	68	76	144	47	53	100
1870	81	90	171	48	52	100
1880	145	167	312	46	54	100
1889	117	203	320	37	63	100

The statement for ten years ending 1886 was as follows :—

	Millions £ Sterling			Ratio
	Imports from	Exports to	Total	
Great Britain . . .	322	820	1,142	41.0
Germany	108	123	231	8.3
France	137	129	266	9.6
Cuba	154	27	181	6.5
Canada	75	73	148	5.3
China and Japan . .	66	21	87	3.1
Brazil	96	17	113	4.1
Italy	23	20	43	1.6
Other countries . .	263	309	572	20.5
Total . .	1,244	1,539	2,783	100.0

The values of exports in sixty years ending 1886 were :—

MILLIONS £ STERLING

	1827-36	1837-46	1847-56	1857-66	1867-76	1877-86	Sixty Years
Cotton	81	114	181	181	346	422	1,325
Grain	12	13	54	88	154	381	702
Meat	3	5	17	29	75	179	308
Petroleum	...	...	...	7	64	94	165
Tobacco	13	15	20	40	51	51	190
Butter and cheese .	...	1	2	11	20	33	67
Cotton manufacture	2	6	12	8	9	23	60
Iron ,,	...	2	5	9	27	33	76
Wooden ,,	5	6	12	18	34	43	118
Sundries . . .	29	40	59	89	90	280	587
Total . .	145	202	362	480	870	1,539	3,598

The values of imports for sixty years ending 1886 were as follows :—

MILLIONS £ STERLING

	1827–36	1837–46	1847–56	1857–66	1867–76	1877–86	60 Years
Sugar	15	18	29	69	153	179	463
Coffee	15	18	27	37	77	102	276
Woollens	23	21	42	63	108	85	342
Cottons	23	21	40	37	50	58	229
Silks	21	23	46	43	52	77	262
Linens	10	11	17	21	35	42	136
Iron manufactures . .	10	8	33	31	69	69	220
Tea	7	9	12	15	37	33	113
Sundries	46	78	172	272	418	599	1,585
Total . . .	170	207	418	588	999	1,244	3,626

The imports were as follows :—

	1821	1840	1860	1880	1889
	£	£	£	£	£
Sugar	1,100,000	1,800,000	7,100,000	17,700,000	19,400,000
Coffee	900,000	1,800,000	4,500,000	12,500,000	15,600,000
Woollen goods . . .	1,600,000	1,900,000	7,800,000	7,100,000	10,900,000
Cotton ,, . . .	1,600,000	1,300,000	1,900,000	6,200,000	5,600,000
Silk ,, . . .	900,000	2,000,000	6,200,000	9,200,000	7,300,000
Linen ,, . . .	500,000	1,000,000	2,200,000	4,700,000	5,400,000
Iron ,, . . .	400,000	600,000	3,800,000	11,200,000	8,800,000
Tea	200,000	1,100,000	1,800,000	4,100,000	2,600,000
Sundries	1,900,000	6,400,000	34,600,000	63,700,000	78,500,000
Total	9,100,000	17,900,000	69,900,000	136,400,000	154,100,000

The exports were as follows :—

	1821	1840	1860	1880	1889
	£	£	£	£	£
Cotton	4,200,000	13,300,000	39,900,000	44,000,000	49,600,000
Grain	1,100,000	2,500,000	4,600,000	58,200,000	25,800,000
Meat	300,000	400,000	2,100,000	22,900,000	21,600,000
Petroleum	...	...	...	7,500,000	9,400,000
Tobacco	1,100,000	2,100,000	3,900,000	3,800,000	4,700,000
Sundries	2,400,000	4,800,000	15,200,000	35,000,000	54,500,000
Total	9,100,000	23,100,000	65,700,000	171,400,000	165,600,000

The trade of the Colonies before independence was as follows :—

	1701		1750		1773	
	Imports, £	Exports, £	Imports, £	Exports, £	Imports, £	Exports, £
New England	33,000	86,000	48,000	344,000	125,000	527,000
New York	19,000	32,000	36,000	267,000	76,000	289,000
Pennsylvania	5,000	12,000	28,000	218,000	37,000	426,000
Carolina	17,000	14,000	192,000	133,000	457,000	345,000
Virginia, &c.	235,000	199,000	510,000	351,000	675,000	392,000
Total . .	309,000	343,000	814,000	1,313,000	1,370,000	1,979,000

The weight of the principal exports was approximately as follows :—

Period	Tons					
	Cotton	Grain	Meat	Tobacco	Butter and Cheese	Total
1827–36	1,600,000	1,800,000	60,000	450,000	...	3,910,000
1837–46	3,400,000	2,000,000	1,000,000	650,000	20,000	6,170,000
1847–56	4,800,000	6,000,000	350,000	750,000	40,000	11,940,000
1857–66	4,000,000	11,000,000	600,000	900,000	200,000	16,700,000
1867–76	4,200,000	18,500,000	1,500,000	900,000	400,000	25,500,000
1877–86	8,800,000	47,000,000	3,600,000	1,100,000	700,000	61,200,000
60 years	26,800,000	86,300,000	6,210,000	4,750,000	1,360,000	125,420,000

It appears that whereas the value of exports increased tenfold since the decade ending 1836 the weight increased 32-fold.

All the values in the above tables are in gold, allowance being made in each year from 1862 to 1878 for the difference between greenbacks and gold.

Bullion is not included in either imports or exports.

CANADA

Official returns show as follows :—

Year	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
18 2	1,600,000	900,000	2,500,000	2 10 0
1834	2,490,000	1,100,000	3,590,000	2 15 0
1839	2,100,000	1,100,000	3,200,000	2 10 0
1851	7,600,000	5,200,000	12,800,000	5 2 0
1860	11,900,000	10,800,000	22,700,000	6 15 0
1870	16,100,000	15,000,000	31,100,000	8 1 0
1880	19,400,000	19,100,000	38,500,000	8 10 0
1887	24,200,000	19,600,000	43,800,000	8 18 2
1888	23,000,000	18,700,000	41,700,000	8 10 0

The statement for ten years ending 1886 showed as follows :—

The imports were as follows :—

	1851	1860	1876	1877–86	1888
	£	£	£	£	£
Textile goods .	1,900,000	2,400,000	3,700,000	3,900,000	3,800,000
Iron goods	500,000	500,000	2,200,000	2,500,000	2,200,000
Sugar	200,000	400,000	1,000,000	1,200,000	1,200,000
Coal	...	100,000	700,000	1,200,000	1,900,000
Sundries .	5,000,000	8,500,000	11,800,000	14,100,000	13,900,000
Total	7,600,000	11,900,000	19,400,000	22,900,000	23,000,000

The exports were as follows :—

	1851	1860	1876	1877–86	1888
	£	£	£	£	£
Grain	700,000	2,800,000	5,100,000	4,600,000	3,200,000
Meat	...	300,000	700,000	1,200,000	2,200,000
Cheese	...	...	800,000	1,200,000	1,900,000
Timber	1,000,000	1,800,000	3,700,000	3,700,000	4,500,000
Fish .	550,000	1,000,000	1,900,000	1,900,000	1,700,000
Sundries .	2,950,000	4,900,000	4,700,000	6,900,000	5,200,000
Total	5,200,000	10,800,000	16,900,000	19,500,000	18,700,000

In the foregoing tables the whole Canadian Dominion and Newfoundland are included. Meat includes live cattle.

MEXICO

Official reports are as follows :—

	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1880	5,000,000	6,800,000	11,800,000	1 2 0
1889	8,100,000	12,500,000	20,600,000	2 2 0

The trade of ten years summed up thus :—

		£
Imports	. . . . .	71,000,000
Exports	. . . . .	87,000,000
Total	.	158,000,000

MILLIONS £ STERLING

	Imports from	Exports to	Total	Ratio
United States .	100	74	174	41.1
Great Britain .	91	95	186	44.0
Germany . .	3	...	3	0.7
France . . .	4	1	5	1.2
Cuba . . .	3	2	5	1.2
Other countries	28	22	50	11.8
Total . .	229	194	423	100.0

The quantities of exported goods in thirty years showed approximately thus :—

	Tons			
	1857–66	1867–76	1877–86	30 Years
Grain . . .	3,600,000	3,900,000	7,500,000	15,000,000
Timber . .	12,400,000	17,900,000	19,200,000	49,500,000
Meat . . .	130,000	140,000	280,000	550,000
Cheese and butter .	25,000	80,000	320,000	425,000
Fish . . .	650,000	900,000	1,220,000	2,770,000
Coal . . .	...	2,500,000	4,300,000	6,800,000
Ores . . .	45,000	70,000	280,000	395,000
Total .	16,850,000	25,490,000	33,100,000	75,440,000

The returns for 1889 give only exports in detail, viz. :—

	Exports		Exported to
	£		£
Silver . . .	5,800,000	United States	6,100,000
Hemp . . .	1,000,000	Great Britain	1,900,000
Coffee . . .	600,000	France . .	500,000
Hides . . .	300,000	Germany . .	300,000
Sundries . .	4,800,000	Various . .	3,700,000
Total .	12,500,000	Total .	12,500,000

CENTRAL AMERICA

The aggregate trade of Guatemala, Salvador, Honduras, Costa Rica, and Nicaragua in 1888 summed up—imports, $19,600,000 ; exports, $23,100,000 ; but as these dollars are worth only three shillings, the amount is only £3,000,000 for imports, and £3,500,000 for exports.

South America

The latest returns for the various States show as follows :—

	Imports	Exports	Total
	£	£	£
Brazil	19,700,000	21,200,000	40,900,000
Argentina . . .	14,300,000	12,500,000	26,800,000
Chili.	6,600,000	7,500,000	14,100,000
Uruguay . . .	6,300,000	6,200,000	12,500,000
Venezuela . . .	2,500,000	3,300,000	5,800,000
Colombia . . .	2,800,000	1,600,000	4,400,000
Ecuador . . .	2,200,000	2,000,000	4,200,000
Peru	1,800,000	1,300,000	3,100,000
Bolivia . . .	900,000	1,500,000	2,400,000
Paraguay . . .	300,000	200,000	500,000
Total . .	57,200,000	57,300,000	114,500,000

Brazil

Inconvertible paper money has so often been a disturbing element that values were at times obscured. Reduced to gold, the trade showed approximately thus :—

Period	Annual Average		
	Imports	Exports	Total
	£	£	£
1836–41	5,200,000	4,700,000	9,900,000
1852–61	12,000,000	10,800,000	22,800,000
1862–74	15,500,000	18,300,000	33,800,000
1882–88	17,200,000	18,000,000	35,200,000

The exports in 1888 were as follows :—

	£	To	£
Coffee . . .	15,100,000	United States	11,000,000
Sugar . . .	1,300,000	Great Britain	5,200,000
Cotton . . .	1,200,000	France . .	2,800,000
Sundries . .	3,600,000	Various . .	2,200,000
Total . .	21,200,000	Total .	21,200,000

The weight of exports in the years 1880–84 averaged thus :—

	Tons			Tons
Coffee . . .	230,000	Tobacco . . .	22,000
Sugar . . .	217,000	India-rubber . .	7,100

Argentina

Official records of merchandise are as follows :—

Year	Imports	Exports	Total	Per Inhab.
	£	£	£	£ s. d.
1795	510,000	920,000	1,430,000	3 10 0
1825	1,600,000	1,200,000	2,800,000	4 0 0
1837	1,200,000	1,400,000	2,600,000	3 0 0
1842	1,300,000	1,400,000	2,700,000	3 3 0
1850	2,100,000	2,200,000	4,300,000	4 6 0
1865	5,400,000	4,400,000	9,800,000	6 0 0
1870	9,500,000	5,800,000	15,300,000	8 0 0
1880	8,800,000	11,300,000	20,100,000	8 0 0
1889	14,300,000	12,500,000	26,800,000	8 0 0

The trade of the country was stagnant from the period of Independence down to 1842, but after the latter date numbers of Irish sheep-farmers arrived (now numbering 20,000), to whom, in Consul Cowper's words, " the wealth and progress of Argentina are in a great measure due."

The statement for ten years ending December 1886 showed :—

	Millions £ Sterling			Ratio
	Imports from	Exports to	Total	
Great Britain . . .	38	11	49	21.8
France	22	31	53	23.4
Belgium	7	23	30	13.7
Germany	8	7	15	6.8
United States . . .	8	6	14	6.4
Uruguay	6	4	10	4.4
Other countries . .	28	24	52	23.5
Total . . .	117	106	223	100.0

The principal exports appear in the following table :—

	1873	1880	1888	1877–86
	£	£	£	£
Wool . . .	3,900,000	5,300,000	5,900,000	5,100,000
Hides and skins .	2,800,000	3,600,000	2,700,000	2,900,000
Meat . . .	700,000	900,000	700,000	700,000
Grain . . .	...	150,000	1,400,000	700,000
Sundries . .	1,800,000	1,350,000	2,600,000	1,200,000
Total .	9,200,000	11,300,000	13,300,000	10,600,000

Fuller details of exports will be found under *Agriculture*, p. 49.

Uruguay

Official returns are as follows :—

Period	Annual Trade, £ Sterling			Per Inhabitant
	Imports	Exports	Total	
	£	£		£ s. d.
1841–50	1,300,000	1,200,000	2,500,000	20 10 0
1851–60	1,800,000	1,700,000	3,500,000	20 5 0
1861–70	2,700,000	2,400,000	5,100,000	18 10 0
1871–80	3,500,000	3,300,000	6,800,000	18 12 0
1881–87	4,500,000	4,600,000	9,100,000	16 10 0
1888	6,300,000	6,200,000	12,500,000	20 0 0

The statement for ten years ending 1886 was as follows :—

Millions £ Sterling

	Imports from	Exports to	Total	Ratio
Great Britain . . .	12	10	22	26.2
France	7	7	14	16.7
United States . . .	3	5	8	9.5
Brazil	4	8	12	14.4
Belgium	1	6	7	8.3
Germany	3	1	4	4.8
Other countries . .	10	7	17	20.1
Total . .	40	44	84	100.0

The returns for 1887 were as follows :—

	Imports		Exports	
	£			£
Wines . . .	700,000	Wool . . .		1,200,000
Raw material .	1,000,000	Meat . . .		1,200,000
Textile goods .	900,000	Hides . . .		700,000
Groceries . .	1,100,000	Sundries . .		1,400,000
Sundries . . .	1,500,000	Total . .		4,500,000
Total . .	5,200,000			

CHILE

Official reports give the following :—

Year	Imports	Exports	Total
	£	£	£
1844 . . .	1,500,000	1,400,000	2,900,000
1854 . . .	3,400,000	3,000,000	6,400,000
1865 . . .	4,800,000	4,400,000	9,200,000
1875 . . .	7,600,000	7,200,000	14,800,000
1888 . . .	6,600,000	7,500,000	14,100,000

The statement for ten years ending 1886 showed :—

	Millions £ Sterling			Ratio
	Imports from	Exports to	Total	
Great Britain . . .	18	45	63	54.6
Germany	7	3	10	9.0
France	7	4	11	10.0
Argentine Republic .	3	1	4	3.2
United States . . .	2	2	4	3.6
Other countries . .	11	12	23	19.6
Total . . .	48	67	115	100.0

The above amounts for 1888 are computed at the current rate for the year, 27 pence per dollar.

AUSTRALIA

Official reports show as follows :—

Year	Imports	Exports	Total	Per Inhab.
	£	£	£	£ s. d.
1824	420,000	120,000	540,000	5 2 0
1830	670,000	310,000	980,000	8 2 0
1838	2,970,000	1,530,000	4,500,000	22 10 0
1851	4,300,000	3,700,000	8,000,000	17 10 0
1861	25,100,000	24,500,000	49,600,000	31 10 0
1871	30,100,000	34,700,000	64,800,000	24 0 0
1881	50,200,000	48,600,000	98,800,090	33 0 0
1888	65,300,000	57,600,000	122,900,000	29 5 0
1889	68,300,000	61,500,000	129,800,000	35 0 0

The above exports include gold, the production of which has been as follows :—

Period	Millions £ Sterling		Per Annum £
1851–60 . . .	104	...	10,400,000
1861–70 . . .	82	...	8,200,000
1871–80 . . .	72	...	7,200,000
1881–88 . . .	42	...	5,200,000
38 years . . .	300		8,000,000

The export of wool during the same period has been as follows :—

Period	Million Lbs.	Value, Million £	Million Lbs. Yearly	Value, £ Yearly
1851–60	560	48	56	4,800,000
1861–70	1,350	102	135	10,200,000
1871–80	3,060	184	306	18,400,000
1881–88	3,100	142	390	17,800,000
38 years	8,070	476	212	12,600,000

It appears that the wool exports of 38 years exceeded the product of the goldfields in the same term by 176 millions sterling. At present the clip averages a value of 21 millions sterling, or five times that of the gold product.

The statement for ten years ending 1886 showed, including bullion :—

	Millions £ Sterling		
	Imports from	Exports to	Total
Great Britain	274	243	517
United States	18	8	26
France	2	2	4
China	10	...	10
Other countries . . .	77	98	175
Foreign trade	381	351	732
Intercolonial	178	137	315
Total . .	559	488	1,047

The trade of the several colonies in the same period was :—

	Millions £ Sterling			Per Inhab. per Annum
	Imports	Exports	Total	
				£ s. d.
New South Wales	188	161	349	47 0 0
Victoria . .	171	151	322	37 0 0
New Zealand .	76	64	140	28 0 0
South Australia .	55	52	107	38 0 0
Queensland . .	49	41	90	42 0 0
Tasmania . .	15	14	29	25 0 0
Western Australia .	5	5	10	33 0 0
Total . .	559	488	1,047	38 0 0

The following table shows the growth of trade since 1861 :—

From	Imports, £			
	1861	1871	1881	1888
Great Britain	13,500,000	12,000,000	25,700,000	30,100,000
Foreign nations	5,000,000	4,600,000	7,700,000	9,700,000
Intercolonial	6,600,000	13,500,000	16,800,000	25,500,000
Total . .	25,100,000	30,100,000	50,200,000	65,300,000

To	Exports, £			
	1861	1871	1881	1888
Great Britain	12,200,000	18,500,000	24,300,000	28,700,000
Foreign nations	4,400,000	4,600,000	6,800,000	5,600,000
Intercolonial	7,900,000	11,600,000	17,500,000	23,300,000
Total . .	24,500,000	34,700,000	48,600,000	57,600,000

With	Total Trade, £			
	1861	1871	1881	1888
Great Britain	25,700,000	30,500,000	50,000,000	58,800,000
Foreign nations	9,400,000	9,200,000	14,500,000	15,300,000
Intercolonial	14,500,000	25,100,000	34,300,000	48,800,000
Total . .	49,600,000	64,800,000	98,800,000	122,900,000

In the above table foreign includes even British colonies outside of Australia, and intercolonial only the traffic between the seven Australasian colonies.

Excluding intercolonial traffic, the trade of Australia has risen from 40 millions sterling in 1871 to 74 millions in 1888, an increase of 85 per cent. The following table of ratios shows that trade with Great Britain is relatively on the decline, probably the result of Protection tariffs.

With	Ratio of Trade			
	1861	1871	1881	1888
Great Britain . . .	51.8	47.1	50.6	48.2
Foreign nations . .	19.0	14.2	14.7	12.4
Intercolonial . . .	29.2	38.7	34.7	39.4
Total . .	100.0	100.0	100.0	100.0

The trade returns of 1889 were as follows :—

	Imports, £	Exports, £	Total, £	£ per Inhab.
N. S. Wales	22,600,000	23,300,000	45,900,000	41.7
Victoria . .	24,200,000	12,500,000	36,700,000	33.4
Queensland .	6,000,000	6,900,000	12,900,000	32.5
S. Australia .	6,800,000	7,300,000	14,100,000	44.7
New Zealand	6,300,000	9,300,000	15,600,000	26.0
Tasmania .	1,600,000	1,500,000	3,100,000	21.0
W. Australia	800,000	700,000	1,500,000	36.0
Total .	68,300,000	61,500,000	129,800,000	35.5

The figures for Western Australia are those of 1888.

The foreign and intercolonial trade of the several colonies was distinguished in the returns for 1888 as follows :—

	Imports £	Exports £	Total £	Foreign £	Intercolonial £
New South Wales	20,900,000	20,900,000	41,800,000	23,400,000	18,400,000
Victoria	24,000,000	13,900,000	37,900,000	25,000,000	12,900,000
Queensland	6,700,000	6,100,000	12,800,000	5,600,000	7,200,000
South Australia	5,400,000	7,000,000	12,400,000	7,400,000	5,000,000
New Zealand	5,900,000	7,800,000	13,700,000	10,900,000	2,800,000
Tasmania	1,600,000	1,300,000	2,900,000	800,000	2,100,000
Western Australia	800,000	700,000	1,500,000	1,000,000	500,000
Total	65,300,000	57,700,000	123,000,000	74,100,000	48,900,000

The exports were as follows :—

SOUTH AFRICA

	1860 £	1870 £	1880 £	1888 £	1877–86 £
Wool	1,400,000	1,800,000	2,900,000	2,900,000	2,500,000
Diamonds	...	200,000	3,400,000	4,000,000	3,000,000
Copper	100,000	150,000	300,000	900,000	400,000
Feathers	20,000	100,000	900,000	300,000	800,000
Sundries	680,000	750,000	1,100,000	2,200,000	1,100,000
Total	2,200,000	3,000,000	8,600,000	10,300,000	7,800,000

The foregoing table shows that, although sheep-farming is prosperous, and wool continues to form a staple product of the colony, the first rank as regards value among the exports now belongs to diamonds, of which there seems to be no decline in number or quality. In twelve years ending 1889 the production of diamonds reached a value of nearly 40 millions sterling. At the same time the yield of copper has risen to importance. The only item which shows a decline is ostrich feathers, an industry which gave great promise ten years ago.

Official returns, comprising Cape Colony and Natal, show as follows :—

Year	Imports £	Exports £	Total £	Per In-habitant £. s. d.
1851	1,800,000	700,000	2,500,000	8 0 0
1860	3,000,000	2,200,000	5,200,000	12 10 0
1870	2,800,000	3,000,000	5,800,000	7 0 0
1880	10,000,000	8,600,000	18,600,000	17 0 0
1888	8,400,000	10,300,000	18,700,000	15 0 0

Distinguishing Natal from Cape Colony, the trade stood thus :—

	Imports		Exports	
	1860 £	1888 £	1860 £	1888 £
Cape Colony	2,600,000	5,500,000	2,100,000	8,900,000
Natal . .	400,000	2,900,000	100,000	1,400,000
Total . .	3,000,000	8,400,000	2,200,000	10,300,000

The statement for ten years ending 1886 showed :—

	Millions £ Sterling			Ratio
	Imports from	Exports to	Total	
Great Britain .	66	72	138	84.7
Other countries	19	6	25	15.3
Total . .	85	78	163	100.0

Exports for 1888 were as follows :—

	Cape, £	Natal, £	South Africa, £
Wool. . . .	2,200,000	700,000	2,900,000
Diamonds . .	4,000,000	...	4,000,000
Sundries . .	2,700,000	700,000	3,400,000
Total . .	8,900,000	1,400,000	10,300,000

WEST AFRICA

This group of colonies comprises Lagos, Gold Coast, Sierra Leone, and Gambia. Official records show the aggregate trade thus :—

Year	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1851	300,000	300,000	600,000	3 0 0
1860	400,000	400,000	800,000	2 0 0
1870	1,000,000	1,300,000	2,300,000	4 10 0
1880	1,300,000	1,500,000	2,800,000	4 14 0
1888	1,200,000	1,200,000	2,400,000	1 12 0

The trade of the several colonies in 1887 was :—

	Imports, £	Exports, £
Lagos . . .	420,000	490,000
Gold Coast . .	360,000	270,000
Sierra Leone . .	310,000	310,000
Gambia . . .	80,000	90,000
Total . .	1,170,000	1,160,000

The statement for ten years ending 1886 showed :—

	Millions £ Sterling			Ratio
	Imports from	Exports to	Total	
Great Britain .	9	7	16	58.5
Germany . .	2	2	4	14.6
Other countries	2	5	7	26.9
Total . .	13	14	27	100.0

WEST INDIES

Under this term may be comprised the various British possessions, Jamaica, Trinidad, Guiana, Barbadoes, and minor islands. Official records show :—

Year	Imports	Exports	Total	Per Inhab.
	£	£	£	£ s. d.
1851	4,600,000	4,500,000	9,100,000	10 2 0
1860	5,800,000	6,100,000	11,900,000	10 10 0
1870	6,800,000	7,500,000	14,300,000	11 0 0
1880	8,100,000	8,500,000	16,600,000	11 1 0
1887	6,900,000	8,000,000	14,900,000	9 10 0

The exports have been nearly stationary in value during the past twenty years, sugar having fallen greatly in price. Returns show as follows :—

	1851	1860	1870	1887	1877 86 Mill. £
	£	£	£	£	
Sugar .	2,100,000	3,000,000	3,800,000	3,700,000	41
Rum .	300,000	600,000	600,000	400,000	5
Coffee .	100,000	100,000	200,000	200,000	2
Cocoa .	100,000	100,000	200,000	400,000	4
Sundries	1,900,000	2,300,000	2,700,000	3,300,000	33
Total .	4,500,000	6,100,000	7,500,000	8,000,000	85

The exports were from the West Indies in 1887 as follows :—

	Sugar	Rum	Coffee	Cocoa	Sundries	Total
	£	£	£	£	£	£
Jamaica	260,000	300,000	210,000	...	740,000	1,510,000
Barbadoes	800,000	...	...	...	260,000	1,060,000
Trinidad	850,000	...	...	410,000	610,000	1,870,000
Guiana	1,840,000	140,000	...	...	210,000	2,190,000
Small islands	...	...	...	...	...	1,370,000
Total	...	...	...	...	...	8,000,000

The statement for ten years ending 1886 showed :—

MILLIONS £ STERLING

	Imports from	Exports to	Total	Ratio
Great Britain . . .	36	49	85	50.0
United States . . .	17	15	32	19.0
Canada	6	4	10	6.0
Other countries . .	25	17	42	24.0
Total . . .	84	85	169	100.0

INDIA

Imports of British merchandise in the early part of the eighteenth century averaged to India as follows per annum :—

1709–18	£4,800,000
1719–28	4,400,000
1729–34	5,000,000

The trade, excluding bullion, has been :—

Year	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1815	8,100,000	2,600,000	10,700,000	0 2 6
1830	5,700,000	4,100,000	9,800,000	0 2 0
1851	11,600,000	18,200,000	29,800,000	0 5 0
1860	24,200,000	28,000,000	52,200,000	0 7 0
1870	32,900,000	52,500,000	85,400,000	0 11 0
1880	41,200,000	67,200,000	108,400,000	0 12 0
*1889	66,600,000	97,000,000	163,600,000	0 16 0

* The Indian Customs still compute rupees at 24 pence, and hence the values here stated are 33 per cent. too much.

Imports of India were as follows :—

	1851	1870	1880	1889	1877-86
	£	£	£	£	£
Cotton manufactures . .	3,600,000	13,600,000	16,900,000	31,500,000	19,300,000
Woollen ,, . .	200,000	600,000	900,000	1,600,000	1,100,000
Silk ,, . .	100,000	500,000	800,000	1,500,000	1,000,000
Metals	1,800,000	3,400,000	3,300,000	5,200,000	4,000,000
Machinery	...	1,800,000	1,600,000	2,300,000	2,200,000
Sugar	...	700,000	1,100,000	1,800,000	1,200,000
Cotton yarn . . .	1,000,000	2,700,000	2,700,000	3,500,000	3,000,000
Coal	...	500,000	1,100,000	1,900,000	1,100,000
Sundries	4,900,000	9,100,000	12,800,000	17,300,000	15,100,000
Total . .	11,600,000	32,900,000	41,200,000	66,600,000	48,000,000

For importation of bullion see *Gold and Silver.*
The exports of India were as follows :—

	1851	1870	1880	1889	1877-86
	£	£	£	£	£
Cotton	3,500,000	19,100,000	11,100,000	15,100,000	12,200,000
Opium	5,500,000	11,700,000	14,300,000	10,500,000	12,300,000
Grain	700,000	3,000,000	9,500,000	15,500,000	12,800,000
Jute	200,000	2,200,000	5,600,000	7,900,000	5,400,000
Seeds	300,000	2,300,000	4,800,000	9,600,000	7,300,000
Tea	...	1,100,000	3,100,000	5,300,000	3,400,000
Cotton goods	700,000	1,300,000	2,800,000	6,400,000	3,300,000
Dyes	2,100,000	3,600,000	3,600,000	4,700,000	4,500,000
Hides	300,000	1,700,000	3,700,000	4,800,000	4,100,000
Sundries	4,900,000	6,500,000	8,700,000	17,200,000	9,700,000
Total	18,200,000	52,500,000	67,200,000	97,000,000	75,000,000

The statement for ten years ending 1886 showed :—

MILLIONS £ STERLING

	Imports from	Exports to	Total	Ratio
Great Britain . . .	437	323	760	55.3
Hong-Kong . . .	33	103	136	10.0
Australia . . .	10	6	16	1.2
Singapore . . .	15	31	46	3.3
Mauritius . . .	10	10	20	1.5
United States . . .	6	28	34	2.5
China	9	35	44	3.2
France	6	65	71	5.2
Other countries . .	77	168	245	17.8
Total . .	603	769	1,372	100.0

The trade of India has almost doubled since 1870, imports having increased 102 per cent., exports 85 per cent., taking the rupee at 24d.

CEYLON

Official records are as follows :—

Year	Imports	Exports	Total	Per Inhabitant
	£	£	£	£ s. d.
1851	1,000,000	1,100,000	2,100,000	1 8 0
1860	2,400,000	2,300,000	4,700,000	2 7 0
1870	4,100,000	3,800,000	7,900,000	3 6 0
1880	4,000,000	4,200,000	8,200,000	3 2 0
1888	4,700,000	3,200,000	7,900,000	2 15 0

The imports of Ceylon were as follows :—

	1851	1860	1870	1877-86	1888
	£	£	£	£	£
Grain	500,000	700,000	1,600,000	1,800,000	2,000,000
Cotton	200,000	600,000	1,000,000	400,000	400,000
Coal	...	...	200,000	200,000	500,000
Sundries	300,000	900,000	1,300,000	1,400,000	1,800,000
Total . .	1,000,000	2,400,000	4,100,000	3,800,000	4,700,000

The exports were as follows :—

	1851	1860	1870	1877-86	1888
	£	£	£	£	£
Coffee	1,000,000	1,600,000	2,800,000	1,900,000	600,000
Chinchona	...	...	...	200,600	150,000
Oil	...	...	200,000	200,000	550,000
Sundries	100,000	500,000	800,000	1,100,000	1,900,000
Total . .	1,100,000	2,300,000	3,800,000	3,500,000	3,200,000

Sundries for 1888 included £1,020,000 for tea, now the principal export of the island.

The statement for ten years ending 1886 showed—

| | Millions £ Sterling | | | Ratio |
	Imports from	Exports to	Total	
India . . .	28	5	33	42.3
Great Britain .	12	22	34	43.6
Other countries	3	8	11	14.1
Total . .	43	35	78	100.0

STRAITS SETTLEMENT

This colony, formerly known as Singapore, shows the following trade :—

	Imports, £	Exports, £	Total, £
1861	7,900,000	6,600,000	14,500,000
1870	9,700,000	7,100,000	16,800,000
1880	11,700,000	10,500,000	22,200,000
1887	21,500,000	18,800,000	40,300,000

Singapore is a great emporium for trade between Europe and the East, and hence its trade is out of all proportion to the population of the colony ; average, £80 per inhabitant.

The imports were as follows :—

	1851	1860	1870	1887	1877–86
	£	£	£	£	£
Grain	330,000	770,000	660,000	570,000	600,000
Textiles	110,000	170,000	280,000	170,000	200,000
Sundries	460,000	1,360,000	1,060,000	1,660,000	1,500,000
Total . .	900,000	2,300,000	2,000,000	2,400,000	2,300,000

The exports were as follows :—

	1851	1860	1870	1888	1877–86
	£	£	£	£	£
Sugar	1,000,000	2,100,000	1,900,000	2,300,000	3,300,000
Sundries	100,000	200,000	200,000	300,000	300,000
Total . .	1,100,000	2,300,000	2,100,000	2,600,000	3,600,000

CHINA

Official returns are as follows :—

Year	Imports, £	Exports, £	Total, £
1876	20,900,000	24,100,000	45,000,000
1880	23,000,000	22,500,000	45,500,000
1888	26,000,000	23,000,000	49,000,000

The statement for ten years ending 1886 showed :—

| | Millions £ Sterling | | | Ratio |
	Imports from	Exports to	Total	
Hong-Kong . . .	84	45	129	30.7
Great Britain . . .	45	63	108	25.6
India	52	1	53	12.5
Japan	11	4	15	3.6
Other countries . .	30	84	114	27.6
Total . .	222	197	419	100.0

The statement for ten years ending 1886 showed :—

| | Millions £ Sterling | | | Ratio |
	Imports from	Exports to	Total	
Great Britain .	36	28	64	21.5
India . . .	25	9	34	11.4
Hong-Kong .	18	11	29	9.8
Java	27	36	63	21.2
Malacca . .	17	13	30	10.1
Siam . . .	11	10	21	7.1
Other countries	22	34	56	18.9
Total .	156	141	297	100.0

The trade of 1888, merchandise and bullion, amounted to—imports, 32 ; exports, 27 millions sterling.

MAURITIUS

The trade returns show as follows :—

	Imports, £	Exports, £	Total, £
1851	900,000	1,200,000	2,100,000
1860	2,300,000	2,300,000	4,600,000
1870	2,000,000	2,100,000	4,100,000
1880	1,700,000	3,000,000	4,700,000
1888	1,200,000	2,600,000	3,800,000

The imports were as follows :—

	1876	1886	1877–86	1888
	£	£	£	£
Opium . .	8,400,000	6,200,000	7,500,000	7,600,000
Cotton goods	6,000,000	7,200,000	6,600,000	10,500,000
Sundries . .	6,500,000	8,500,000	8,200,000	7,900,000
Total .	20,900,000	21,900,000	22,300,000	26,000,000

The exports were as follows :—

	1876	1886	1877–86	1888
	£	£	£	£
Tea . . .	11,000,000	8,500,000	8,900,000	7,200,000
Silk . . .	10,800,000	7,200,000	6,900,000	7,500,000
Sundries . .	2,300,000	3,600,000	3,900,000	8,300,000
Total .	24,100,000	19,300,000	19,700,000	23,000,000

The quantities of tea exported were :—

1876	190 million lbs.
1880	222 ,, ,,
1888	290 ,, ,,

PERSIA

The total trade of the Empire in 1881 was said to reach £7,700,000, but the estimates of the *T'mes* correspondent for 1889 do not exceed £6,000,000, viz.:—

	Imports, £			Exports, £
Cottons . . .	1,800,000	Opium . . .		500,000
Silks	600,000	Silk, raw . .		400,000
Woollens . .	400,000	Rice . . .		300,000
Sugar . . .	300,000	Fruit . . .		100,000
Sundries. . .	700,000	Sundries . .		900,000
Total . .	3,800,000	Total .		2,200,000

PHILIPPINE ISLANDS

The exports of these islands were as follows :—

	1889		To	1888
	Tons	£		£
Sugar	220,000	2,200,000	Great Britain .	1,700,000
Hemp .	115,000	3,200,000	Spain	600,000
Coffee .	6,000	500,000	Other countries	4,300,000
Tobacco	10,000	700,000	Total .	6,600,000
Total	...	6,600,000		

Imports average about £2,000,000, English cotton goods representing £900,000.

JAPAN

Official returns are as follows :—

Year	Imports, £	Exports, £	Total, £
1876	5,000,000	5,700,000	10,700,000
1880	7,600,000	5,700,000	13,300,000
1888	10,900,000	10,800,000	21,700,000

The imports and exports in 1888 were :—

	Imports, £		Exports, £
Cotton yarn . .	2,300,000	Silk . . .	4,800,000
Cotton manu-facture	500,000	Tea . . .	1,000,000
		Copper . .	600,000
Woollen . . .	1,100,000	Rice . . .	1,200,000
Sugar	1,100,000	Sundries. .	3,200,000
Sundries . . .	5,900,000	Total .	10,800,000
Total . .	10,900,000		

The statement for seven years ending 1886 showed :—

	Millions £ Sterling			
	Imports from	Exports to	Total	Ratio
Great Britain . . .	20	5	25	25.8
China	8	8	16	16.5
United States . . .	4	20	24	24.7
Other countries . .	13	19	32	33.0
Total . .	45	52	97	100.0

EGYPT

Official returns are as follows :—

Year	Imports, £	Exports, £	Total, £
1824	1,100,000	2,100,000	3,200,000
1874	5,300,000	14,000,000	19,300,000
1880	6,800,000	13,500,000	20,300,000
1889	7,300,000	12,200,000	19,500,000

The imports of 1889 were as follows :—Textiles, £1,800,000; coal, £450,000; iron and machinery, £500,000; coffee, £300,000; and sundries, £4,250,000. The exports were as follows :—

	1876	1886	1877–86	1889
	£	£	£	£
Raw cotton .	9,200,000	7,500,000	7,800,000	8,800,000
Cotton seed .	1,500,000	1,300,000	1,400,000	1,500,000
Sugar . . .	500,000	500,000	600,000	500,000
Grain . . .	1,700,000	700,000	1,400,000	600,000
Sundries . .	1,200,000	900,000	1,200,000	800,000
Total .	14,100,000	10,900,000	12,400,000	12,200,000

Egyptian exports have been for some years declining in value, which is due rather to a fall in prices than to any decrease of quantities produced.

CONGRESS

The first United States Federal Congress met, 4th March 1789. and the fifty-first on 4th March 1889. The first actual Congress of American delegates took place in 1774, and another was held on July 4, 1776, at which the Act of Independence was signed. Congress now consists of 82 Senators and 330 Representatives, all of whom receive a salary of $5000 each per annum, besides 20 cents a mile travelling expenses, and $125 for stationery.

There have been nine Statistical Congresses, attended by members as follows :—

Date	Place	British	French	German	Russian	Austrian	Italian	Hungarian	Dutch	Various	Total
1853	Brussels. . . .	16	11	22	...	1	2	...	5	96	153
1855	Paris	22	203	29	...	5	9	...	2	41	311
1859	Vienna	4	11	37	3	430	8	24	4	16	537
1860	London	478	9	25	12	5	1	...	4	51	585
1863	Berlin	13	7	397	13	10	4	2	3	28	477
1867	Florence . . .	16	14	17	14	4	665	...	1	20	751
1869	Hague	20	15	18	10	5	9	3	372	36	488
1872	Petersburgh . .	17	5	23	512	15	10	7	4	45	638
1876	Pesth	10	12	33	32	42	8	282	3	33	455
	Total . .	596	287	601	596	517	716	318	398	366	4,395

Valuable statistical papers were read at the above meetings.

COPPER

The production of this metal has multiplied fivefold since 1850, shown thus :—

	Fine Copper, Tons				
	1850	1860	1870	1880	1888
Great Britain .	11,800	13,540	7,220	3,440	1,500
France . .	2,300	2,500	4,900	5,100	3,000
Germany . .	1,650	3,200	6,850	10,140	15,000
Russia . . .	6,000	5,500	5,500	6,100	5,000
Spain . . .	200	300	1,100	21,300	53,000
Sweden . . .	2,300	2,200	2,000	1,600	1,000
Austria, &c. .	1,600	1,900	2,000	2,200	2,700
Europe . . .	25,850	9,140	29,570	49,880	81,200
United States .	2,700	5,530	12,650	20,260	103,000
Chili . . .	14,300	25,100	30,200	36,800	31,000
Australia . .	2,400	7,600	9,700	13,100	8,000
Cape Colony .	...	...	1,000	5,000	8,000
Venezuela . .	2,000	2,000	3,000	4,000	4,000
Japan . . .	3,000	3,000	3,000	5,000	11,000
Other countries	2,000	3,000	5,000	8,000	15,800
Total . .	52,250	75,370	94,120	142,040	262,000

In 1889 the production in the United States was 107,000 tons fine copper, and the consumption 75,000 tons.

The ratio of copper to copper ore is as follows :—

	Per Cent. of Pure Copper		Per Cent. of Pure Copper
Germany .	. . 3	England .	. 7
Austria .	. . 4	Australia .	. 12
France .	. . 5	United States	. 18

The British copper trade since 1850 has been as follows :—

Year	Tons		Value		Fine Copper per Ton
	Imported	Exported	Imports	Exports	
			£	£	£
1850 .	51,000	11,000	1,412,000	1,080,000	102
1851–60	78,000	26,000	2,254,000	2,531,000	98
1860 .	109,000	31,000	3,404,000	3,153,000	107
1861–70	133,000	46,000	4,016,000	3,844,000	89
1870 .	137,000	52,000	4,039,000	3,772,000	76
1871–80	147,000	56,000	5,151,000	4,413,000	78
1881 .	182,000	65,000	4,593,200	4,284,000	68
1888 .	280,000	40,000	8,600,000	3,100,000	80

The imports include, besides copper, a quantity of "regulus," or half-smelted ore.

The following table shows the annual yield of copper-mines in Great Britain :—

Period	Tons	Value, £	Period	Tons	Value, £
1725–45 .	560	84,000	1801–20 .	5,880	720,000
1746–65 .	1,030	160,000	1821–40 .	13,220	1,360,000
1766–85 .	2,020	290,000	1841–60 .	12,840	1,355,000
1786–1800 .	2,710	430,000	1861–80 .	8,070	686,000

The total value of the output for 100 years ending 1880 was 91 millions sterling. In 1888 the total product of copper in the world was valued at 20 millions sterling per annum. The prices of this metal, however, vary exceedingly ; in 1882 it was £67 per ton, falling in 1886 to £40 ; whereupon a French " ring " drove up the price to £80, but it fell afterwards to £50.

It is remarkable that, although copper-money is no longer in use, the consumption of this metal is more than five times as great as it was forty years ago. This is in great measure explained by the enormous development of telegraph wire, cartridges, and other things in which copper largely enters.

COTTON

According to Baines and other authorities, the production of raw cotton was as follows :—

	Million Lbs.					
	United States	South America	Egypt	India	Various	Total
1791	2	102	...	130	256	490
1801	48	102	...	160	210	520
1811	80	104	...	170	201	555
1821	180	86	6	175	183	630
1831	385	82	18	180	155	820
1840	878	90	30	212	100	1,310
1850	890	90	45	310	100	1,435
1860	1,880	90	51	420	100	2,551
1870	1,540	270	240	625	100	2,775
1880	2,593	86	282	540	100	3,601
1888	3,420	85	290	888	100	4,783

Ellison's table and others show the consumption to have been at various dates as follows :—

	Millions of Lbs.						
	1830	1840	1850	1860	1869	1880	1887–8
United Kingdom	250	454	588	1,140	1,101	1,404	1,530
France . . .	68	116	140	226	220	200	310
Germany . .	16	26	46	140	147	286	378
Russia . . .	4	14	48	87	97	220	369
Austria. . .	20	34	58	94	96	140	235
Italy . . .	4	8	16	26	26	64	152
Spain . . .	6	14	34	52	50	88	105
Sweden . . .	1	2	8	16	16	25	28
Holland . . .	2	4	5	6	10	20	24
Belgium . . .	8	16	22	29	35	50	52
Switzerland . .	9	18	24	30	39	49	52
Europe . . .	388	707	988	1,847	1,837	2,546	3,235
United States .	77	135	288	390	400	768	1,010
India	...	...	...	26	35	172	283
Various . . .	5	10	10	10	20	60	100
Total .	470	852	1,286	2,273	2,292	3,546	4,628

The production and consumption of raw cotton in 67 years ending December 1887 were approximately as follows :—

Period	Production, Tons Aggregate				
	United States	India	Egypt	Brazil, &c.	Total
1821–30	1,050,000	310,000	100,000	120,000	1,580,000
1831–40	2,270,000	480,000	120,000	120,000	2,990,000
1841–50	3,950,000	950,000	170,000	150,000	5,220,000
1851–60	6,450,000	1,400,000	260,000	150,000	8,260,000
1861–70	3,750,000	2,900,000	870,000	670,000	8,190,000
1871–80	8,700,000	2,630,000	1,290,000	305,000	12,925,000
1881–87	8,680,000	2,240,000	910,000	230,000	12,060,000
67 years	34,850,000	10,910,000	3,720,000	1,685,000	51,165,000

It appears that the United States have produced two-thirds of the cotton which has been consumed by the factories of the world in the last 67 years, and that the cotton-crop of the world shows a steady increase, the decade ending 1890 showing 400,000 tons a year more than the preceding. Great Britain consumes one-third of all the cotton produced, the United States being the next largest consumer. In this industry France stood ahead of Germany until the war of 1870.

	Consumption, Tons Aggregate						
	1821–40	1841–50	1851–60	1861–70	1871–80	1881–87	Total
Great Britain . . .	2,310,000	2,320,000	3,830,000	3,540,000	5,650,000	4,550,000	22,200,000
France . . .	660,000	610,000	830,000	760,000	950,000	940,000	4,750,000
Germany. . . .	190,000	410,000	660,000	650,000	1,140,000	1,220,000	4,270,000
Russia . . .	180,000	240,000	360,000	320,000	820,000	890,000	2,810,000
Austria . . .	160,000	200,000	370,000	330,000	650,000	640,000	2,350,000
Italy . . .	40,000	50,000	90,000	120,000	310,000	410,000	1,020,000
Spain . . .	80,000	110,000	200,000	170,000	340,000	340,000	1,240,000
Sweden . . .	10,000	20,000	50,000	50,000	90,000	90,000	310,000
Holland . . .	10,000	20,000	25,000	20,000	65,000	70,000	210,000
Belgium . . .	150,000	120,000	130,000	120,000	200,000	170,000	890,000
Switzerland . .	80,000	90,000	120,000	100,000	200,000	160,000	750,000
Europe . . .	3,870,000	4,190,000	6,665,000	6,180,000	10,415,000	9,480,000	40,790,000
United States . .	650,000	990,000	1,550,000	1,970,000	2,320,000	2,780,000	10,260,000
India . . .	40,000	40,000	45,000	40,000	130,000	710,000	1,025,000
Total . .	4,560,000	5,220,000	8,260,000	8,190,000	12,865,000	12,970,000	52,075,000

There is an apparent discrepancy in the above table, the consumption of cotton in the period 1881–87 exceeding the production by 910,000 tons, which is explained by the circumstance that cotton yarn is often counted with raw cotton. In the said period the cotton-mills of Great Britain and other countries, that produce more yarn than they require.

Continental Europe figure above for 4,930,000 tons of raw cotton, but this included 910,000 tons of yarn, which was thus counted twice, having been already included as raw cotton in the mills of Great Britain and other countries, that produce more yarn than they require.

The following table shows approximately the output of cotton cloth in English statute miles :—

	1821–40	1841–60	1861–70	1871–80	1881–87	Total
Great Britain . . .	9,410,000	27,450,000	16,300,000	29,300,000	23,300,000	105,760,000
France . . .	3,800,000	8,000,000	4,300,000	5,500,000	5,500,000	27,100,000
Germany. . . .	1,100,000	5,800,000	3,500,000	6,500,000	7,000,000	23,900,000
Russia . . .	1,050,000	3,500,000	1,800,000	4,600,000	5,150,000	16,100,000
Austria . . .	900,000	3,200,000	1,900,000	3,600,000	3,500,000	13,100,000
Italy . . .	200,000	750,000	650,000	1,700,000	2,300,000	5,600,000
Spain . . .	400,000	1,700,000	900,000	1,900,000	1,900,000	6,800,000
Sweden . . .	50,000	350,000	250,000	500,000	500,000	1,650,000
Holland . . .	100,000	200,000	100,000	350,000	400,000	1,150,000
Belgium . . .	800,000	1,450,000	700,000	1,100,000	950,000	5,000,000
Switzerland . . .	450,000	1,150,000	550,000	1,100,000	900,000	4,150,000
Europe . . .	18,260,000	53,550,000	30,950,000	56,150,000	51,400,000	210,310,000
United States . .	3,700,000	14,500,000	11,200,000	13,300,000	16,200,000	58,900,000
India, &c. . .	240,000	600,000	250,000	650,000	3,550,000	5,290,000
Total . .	22,200,000	68,650,000	42,400,000	70,100,000	71,150,000	274,500,000

The following summary shows the business for 67 years approximately, viz., 1821–87 :—

	Value, Millions £			Tons Cotton Consumed	Miles Cloth Made
	Cotton	Manu-factures	Net		
U. Kingdom	1,595	4,461	2,866	22,200,000	105,760,000
France . .	355	1,037	682	4,750,000	27,100,000
Germany .	317	801	484	4,270,000	23,900,000
Russia . .	206	530	324	2,810,000	16,100,000
Austria . .	173	443	270	2,350,000	13,100,000
Italy . . .	75	178	103	1,020,000	5,600,000
Spain . . .	93	232	139	1,240,000	6,800,000
Sweden . .	24	56	32	310,000	1,650,000
Holland . .	16	39	23	220,000	1,150,000
Belgium . .	69	193	124	870,000	5,000,000
Switzerland .	56	153	97	750,000	4,150,000
Europe . .	2,979	8,123	5,144	40,790,000	210,310,000
United States	705	1,563	858	10,260,000	58,900,000
India, &c. .	60	141	81	1,025,000	5,290,000
Total .	3,744	9,827	6,083	52,075,000	274,500,000

The following table shows the latest information of manufacturing industry as regards cotton ; the number of operatives in some countries is uncertain :—

	No. of Spindles	Cotton, Million Lbs.	Operatives	Output, £
Great Britain	42,740,000	1,530	504,000	101,400,000
United States	13,500,000	1,010	200,000	60,200,000
France . .	4,900,000	310	110,000	18,600,000
Germany .	5,150,000	378	290,000	23,000,000
Russia . .	4,000,000	369	180,000	22,200,000
Austria . .	2,100,000	235	150,000	14,100,000
Italy . . .	1,200,000	152	80,000	9,100,000
Spain and Portugal }	2,200,000	120	53,000	7,200,000
Belgium . .	800,000	52	20,000	3,100,000
Holland . .	300,000	24	10,000	1,500,000
Scandinavia	300,000	28	10,000	1,700,000
Switzerland	1,900,000	52	30,000	3,100,000
India . . .	2,380,000	283	81,000	14,200,000
Japan . .	500,000	30	10,000	1,600,000
Total .	82,370,000	4.573	1,728,000	281,000,000

COTTON MANUFACTURES OF ALL NATIONS

	Tons Cotton	Miles Cloth	Value Millions £		
			Cotton	Manufactures	Net
1821-30	1,570,000	7,380,000	113	632	519
1831-40	2,990,000	14,820,000	220	874	654
1841-50	5,220,000	26,050,000	267	1,055	788
1851-60	8,260,000	42,600,000	500	1,440	940
1861-70	8,190,000	42,400,000	987	1,810	823
1871-80	12,865,000	70,100,000	915	2,234	1,319
1881-87	12,970,000	71,150,000	742	1,782	1,040
67 years	52,075,000	274,500,000	3,744	9,827	6,083

The world produces and consumes annually more than 10 million miles of cotton cloth. The cost of production was found in 1880 to be :—

Pence per 100 Yds.

	Calico	Prints
British	276	384
American	424	502
Greek	353	...
Chinese	310	510
German	298	408
French	312	425

The area under cotton in the principal countries is shown thus :—

	Acres	Crop, Million Lbs.	Lbs. per Acre
United States .	18,450,000	3,420	186
India . . .	14,530,000	888	62
Egypt . . .	1,060,000	290	275
Brazil . . .	150,000	35	230
Other countries .	240,000	50	208
*Total . .	34,260,000	4,733	140

One man can cultivate 12 acres, or, with machinery, 30 acres. Seed-cotton weighs three times as much as ginned cotton or cotton-wool, the seed forming two-thirds. Thus, in the above table, in the United States a yield of 186 lbs. cotton means that before ginned the crop averaged 560 lbs. seed-cotton per acre.

The average length of fibre is as follows :—

	Inches			Inches
Sea Island . .	1.61	Brazilian . .		1.17
Egyptian . .	1.41	New Orleans .		1.02
Peruvian . .	1.30	East Indian .		0.89

The cotton manufacturing industry is shown as follows, according to Spencer's tables (to 1875) :—

	Spindles					
	1832	1845	1861	1875	1885	1888
Great Britain . . .	9,000,000	17,500,000	30,300,000	37,500,000	44,300,000	42,740,000
United States . . .	1,200,000	2,500,000	5,000,000	9,500,000	13,300,000	13,500,000
Continent . . .	2,800,000	7,500,000	10,000,000	19,500,000	22,350,000	23,780,000
India, &c. . . .	...	...	340,000	1,000,000	2,400,000	2,420,000
Total . .	13,000,000	27,500,000	45,640,000	67,500,000	82,350,000	82,640,000

The number of spindles has increased more than sixfold since 1832, the production of cotton more than sevenfold.

GREAT BRITAIN

The principal features of cotton manufacture are shown thus :—

Year	Raw Cotton, Million Lbs.	Yarn Spun, Million Lbs.	Cloth Produced, Million Yards	Value, Millions £		
				Manufactures	Yarn, &c., Exported	Total
1720	2	2	8	...	...	...
1785	11	10	40	...	...	...
1800	52	47	180	...	...	...
1814	95	86	340	28	2	30
1820	119	108	425	30	3	33
1830	245	223	795	34	5	39
1840	452	407	1,445	40	8	48
1850	588	529	2,025	43	6	49
1860	1,140	1,027	4,150	71	10	81
1870	1,101	991	4,647	76	15	91
1880	1,404	1,258	6,146	86	19	105
1887	1,499	1,346	6,534	82	19	101

According to Kennedy, Cowell, and others, 10 lbs. raw cotton produce 9 lbs. spun yarn.

The cotton manufactures of Great Britain are almost equal to the aggregate of all other European nations. They constitute, moreover, one of the most important elements of British industry, the output, as shown above, being valued at more than £300,000 a day. If we

measure the production of cotton cloth not by yards, but by English statute miles, we find that the mills of Great Britain turn out daily more than 10,000 miles. The daily consumption of raw cotton averages 5,000,000 lbs., say 2200 tons. Each operative consumes yearly as much cotton as 20 acres can produce, and turns out about 7 miles of cotton cloth. This is irrespective of the yarn produced for exportation. If all the yarn spun in Great Britain were made into cotton cloth, the output would be nearly one-fourth more.

The quantities of cotton cloth and yarn consumed in Great Britain and exported were approximately as follow :—

Year	Cotton Cloth, Million Yards			Yarn, Million Lbs.		
	Home Use	Exported	Total	Home Use	Exported	Total
1814	148	192	340	70	16	86
1820	176	249	425	85	23	108
1830	350	445	795	159	64	223
1840	654	791	1,445	289	118	407
1850	677	1,348	2,025	405	124	529
1860	1,385	2,765	4,150	830	197	1,027
1870	1,380	3,267	4,647	805	186	991
1880	1,650	4,496	6,146	1,042	216	1,258
1889	1,630	5,002	6,632	1,125	252	1,377

* Ellison estimates the total crop at 5330 million lbs., including 600 millions in China and 150 millions in Central Africa, which are consumed in those countries, and not counted in the above table.

The following table is a summary of British cotton manufacturing industry since 1820 :—

Period	Tons Cotton Consumed	Statute Miles of Cloth Made	Value, Millions £				
			Raw Cotton	Manu-factured	Yarn Exported	Total Product	Net Product
1821–30	810,000	3,480,000	61	301	41	342	281
1831–40	1,505,000	5,930,000	109	322	71	393	284
1841–50	2,320,000	9,940,000	112	388	81	469	357
1851–60	3,830,000	17,510,000	241	597	80	677	436
1861–70	3,540,000	16,300,000	430	698	115	813	383
1871–80	5,650,000	29,300,000	390	933	138	1,071	681
1881–87	4,550,000	23,300,000	252	563	133	696	444
67 years	22,205,000	105,760,000	1,595	3,802	659	4,461	2,866

The quantities and values of cotton goods exported averaged as follows per annum :—

Period	Cotton Cloth, Million Yards			Yarn, Million Lbs.	Value, £ Sterling			Value of a Mile of Cloth
	Plain	.Printed	Total		Cloth	Yarn, &c.	Total	
								£
1821–30 . . .	172	168	340	39	13,100,000	4,100,000	17,200,000	70
1831–40 . . .	314	275	589	90	14,300,000	7,100,000	21,400,000	43
1841–50 . . .	584	381	965	136	16,100,000	8,100,000	24,200,000	31
1851–60 . . .	1,252	736	1,988	171	30,100,000	7,950,000	38,050,000	27
1861–70 . . .	1,606	838	2,444	136	48,100,000	11,500,000	59,600,000	34
1871–80 . . .	2,592	1,101	3,693	222	58,100,000	13,800,000	71,900,000	28
1820 . . .	114	135	249	23	13,200,000	3,300,000	16,500,000	95
1830 . . .	245	200	445	64	14,200,000	5,200,000	19,400,000	57
1840 . . .	433	358	791	118	16,300,000	8,400,000	24,700,000	36
1850 . . .	758	590	1,348	124	21,900,000	6,400,000	28,300,000	29
1860 . . .	1,790	975	2,765	197	42,200,000	9,800,000	52,000,000	26
1870 . . .	2,294	973	3,267	186	56,700,000	14,700,000	71,400,000	31
1880 . . .	3,059	1,437	4,496	216	57,100,000	18,500,000	75,600,000	23
1887 . . .	3,473	1,431	4,904	251	51,700,000	19,300,000	71,000,000	19
1888 . . .	3,608	1,430	5,038	256	52,600,000	19,400,000	72,000,000	19

The birth of the cotton industry may be said to date from 1793, when Whitney's improved gin was invented in the United States. From that time, as shown above, there was a steady and rapid increase, until the American war of 1861 caused a cotton famine, which was estimated to have caused a loss of 66 millions sterling to Great Britain—more properly 98 millions. The cotton-factories of the United Kingdom advanced thus :—

Year	Number of Factories	Operatives	Spindles	Power-Looms	Cotton, Million Lbs.	Cotton, Lbs. per Operative
1838	1,815	259,000	13,000,000	109,000	410	1,574
1850	1,952	331,000	20,900,000	250,000	588	1,780
1860	2,887	...	30,400,000	400,000	1,140	...
1870	2,483	449,000	38,000,000	440,000	1,101	2,420
1880	2,674	487,000	41,900,000	513,000	1,404	2,860
1885	2,635	504,000	44,400,000	561,000	1,500	2,975

In 1889 Mr. Ellison published the following statement :—

	1859–61	1887
	£	£
Products exported . . .	49,030,000	70,960,000
Home consumption . . .	27,970,000	30,440,000
Total value of products .	77,000,000	101,400,000
Paid for cotton . . .	29,290,000	34,460,000
Wages	20,990,000	29,400,000
Expenses and profits .	26,720,000	37,540,000
Total as above . . .	77,000,000	101,400,000

In 1869 Mr. Forwood, of Liverpool, published the following comparative statement :—

	1860	1868
	Million Lbs.	Million Lbs.
Cotton consumed . .	1,079	996
Waste in spinning . .	113	120
Yarn produced . . .	966	876
Yarn exported . . .	197	169
Yarn manufactured .	769	707
	£	£
Value of manufactures	70,000,000	76,600,000
Do. home use . . .	24,400,000	19,200,000
Do. exported . . .	46,300,000	57,400,000
Do. yarn exported . .	9,900,000	14,700,000
Total product . . .	80,600,000	91,300,000
Cost of cotton . . .	28,900,000	41,000,000
Wages, &c.	33,600,000	34,900,000
Net profit	18,100,000	15,400,000

The ratios of the four preceding tables may be shown thus :—

	Forwood				Ellison	
	1860	1868			1859–61	1887
Cost of cotton .	35.9	44.9	Cotton . .		38.0	34.0
Wages, &c. .	41.7	38.2	Wages . .		27.3	29.0
Net profit . .	22.4	16.9	Balance .		34.7	37.0
Total .	100.0	100.0	Total .		100.0	100.0

Although Mr. Forwood estimated the profits of mill-owners at £15,400,000 per annum, it is believed that this is above the reality.

The consumption of British cotton cloth was approximately as follows :—

	Millions of Yards				
	1820	1840	1860	1880	1889
United Kingdom . .	176	654	1,385	1,650	1,630
United States . .	24	32	227	78	49
Spanish America . .	56	279	527	652	720
Europe.	128	200	201	365	370
Africa	10	75	358	589	630
East Indies	11	145	825	1,813	2,363
China	3	30	324	632	557
Various	17	30	303	367	313
Total . .	425	1,445	4,150	6,146	6,632

The customers who took British yarn were as follows :—

	Exported Yarn, Million Lbs.				
	1820	1840	1860	1880	1889
Europe . . .	22	92	116	95	133
East Indies . .	...	16	31	47	49
China and Japan . .	...	2	9	46	36
Various . . .	1	9	41	28	34
Total . .	23	119	197	216	252

Ellison shows the progress of British cotton-mills as follows :—

Period	Spinners	Weavers	Yarn Produced, Million Lbs.	Yarn Consumed, Million Lbs.	Lbs. per Spinner	Lbs. per Weaver
1819–21	110,000	250,000	107	81	968	342
1829–31	140,000	275,000	217	142	1,546	521
1844–46	190,000	210,000	523	348	2,754	1,681
1859–61	248,000	203,000	910	651	3,671	3,206
1886–87	245,000	255,000	1,415	1,162	5,900	4,559

He estimates the capital employed in cotton-mills in 1887 at 105 millions sterling.

FRANCE

The earliest mention of cotton factories is in 1688, when the consumption of raw cotton reached 500,000 lbs. yearly. The next is in 1750, when it was 4 million pounds. The following table shows approximately the principal features of this industry.

Period	Tons, Cotton Consumed	Miles Cloth Made	Value, Millions Lbs.		
			Cotton	Manufactures	Net
1821–30	230,000	1,300,000	17	106	89
1831–40	430,000	2,500,000	33	160	127
1841–50	610,000	3,300,000	33	136	103
1851–60	830,000	4,700,000	50	158	108
1861–70	760,000	4,300,000	95	180	85
1871–80	950,000	5,500,000	71	165	94
1881–87	940,000	5,500,000	56	132	76
67 years	4,750,000	27,100,000	355	1,037	682

The loss of Alsace in 1871 reduced the number of cotton-spindles in France from 6,120,000 to 4,620,000. In 1884 the number had risen to 5,111,000, but this included 227,000 that were idle. There are 1065 cotton-mills in France, with 168,000 operatives, 75,000 power-looms and 40,000 hand-looms. In ten years ending 1887 the imports of cotton manufactures averaged £2,600,000, the exports £3,600,000 per annum.

GERMANY

The consumption of raw cotton and imported yarn has grown sixfold in half a century, viz. :—

Period	Consumption Yearly, Million Lbs. Fibre	Number of Spindles	Output, £
1836–40 . . .	62	600,000	5,600,000
1861–70 . . .	147	2,260,000	14,700,000
1881–87 . . .	378	5,150,000	24,000,000

The business of sixty-seven years was approximately as follows :—

Period	Tons Cotton Consumed	Miles Cloth Made	Value Millions £		
			Cotton	Manufactures	Net
1821–30	70,000	400,000	5	32	27
1831–40	120,000	700,000	9	42	33
1841–50	410,000	2,300,000	23	92	69
1851–60	660,000	3,500,000	40	125	85
1861–70	650,000	3,500,000	81	147	66
1871–80	1,140,000	6,500,000	86	195	109
1881–87	1,220,000	7,000,000	73	168	95
Total	4,270,000	23,900,000	317	801	484

Germany gained 1,450,000 spindles by the annexation of Alsace. The imports of cotton manufactures in ten years down to 1888 averaged £900,000, exports £3,600,000 per annum.

RUSSIA

In 1824, according to Schubert, the mills consumed 4 million pounds of cotton and yarn yearly. There were then 484 mills, against 129 in 1812.

The industry has grown rapidly of late years, viz. :—

Year	Million Lbs. Fibre	Spindles	Output, £
1840 . . .	44	700,000	4,300.000
1870 . . .	94	2,500,000	9,800,000
1887 . . .	369	4,400,000	21,000,000

The business of 67 years is summed up approximately thus :—

Period	Tons Cotton Consumed	Miles Cloth Made	Value, Millions £		
			Cotton	Manufactures	Net
1821–30	50,000	300,000	4	24	20
1831–40	130,000	750,000	10	45	35
1841–50	240,000	1,400,000	14	56	42
1851–60	360,000	2,100,000	22	69	47
1861–70	320,000	1,800,000	40	75	35
1871–80	820,000	4,600,000	62	138	76
1881–87	890,000	5,150,000	54	123	69
67 years	2,810,000	16,100,000	206	530	324

In ten years ending 1887 Russia imported cotton goods worth £6,400,000 yearly.

AUSTRIA

In 1830 the consumption of raw cotton barely reached ̤ million lbs. The following table sums up the business ̤pproximately :—

Period	Tons Cotton Consumed	Miles Cloth Made	Value, Millions £		
			Cotton	Manufactures	Net
̤21–30	60,000	350,000	5	30	25
̤31–40	100,000	550,000	7	31	24
̤41-50	200,000	1,100,000	11	44	33
̤51–60	370,000	2,100,000	22	69	47
̤61–70	330,000	1,900,000	41	77	36
̤71–80	650,000	3,600,000	49	108	59
̤81–87	640,000	3,500,000	38	84	46
̤7 years	2,350,000	13,100,000	173	443	270

Imports and exports of cotton manufactures in the last ̤en years were even.

ITALY

The annual consumption of cotton in 1830 was only ̤ million lbs. The business of 67 years sums up ̤hus :—

Period	Tons Cotton Consumed	Miles Cloth Made	Value, Millions £		
			Cotton	Manufactures	Net
̤821–30	10,000	50,000	1	6	5
̤831–40	30,000	150,000	2	9	7
̤841–50	50,000	250,000	3	12	9
̤851–60	90,000	500,000	6	18	12
̤861–70	120,000	650,000	15	27	12
̤871–80	310,000	1,700,000	23	51	28
̤881–87	410,000	2,300,000	25	55	30
̤7 years	1,020,000	5,600,000	75	178	103

A statement published in 1877 showed that the mills ̤ad 54,000 operatives, 14,000 looms, 880,000 spindles, ̤team-power 3000 horse, water-mills 10,000 horse. In ̤en years ending 1887 Italy imported cotton manufactures ̤orth £2,100,000 yearly.

SPAIN

In 1769 the first cotton factory was built in Spain. A ̤tatement published in 1833 showed 2840 mills, with ̤0,000 spindles, 60,000 operatives, consuming 11 million ̤s. cotton and yarn; product, 55 million yards cloth. ̤he business of 67 years was approximately as follows :—

Period	Tons Cotton Consumed	Miles Cloth Made	Value, Millions £		
			Cotton	Manufactures	Net
̤21–30	30,000	150,000	3	15	12
̤31–40	50,000	250,000	4	15	11
̤41–50	110,000	600,000	6	24	18
̤51–60	200,000	1,100,000	12	36	24
̤61–70	170,000	900,000	21	39	18
̤71–80	340,000	1,900,000	26	57	31
̤81–87	340,000	1,900,000	21	46	25
̤ years	1,240,000	6,800,000	93	232	139

̤ statement in 1886 gave 53,000 operatives, 33,000 ̤ ̤ns, 1,800,000 spindles, and goods manufactured to ̤ ̤ yearly value of £12,400,000, that is, at an average ̤ ̤ixpence per yard of calico. The value is absurd, a ̤ ̤tious one, being the result of enormous import duties.

In ten years ending 1887 Spain imported £400,000 worth of cotton goods yearly, and Portugal £700,000.

As regards Portugal, the consumption is close on 10 million lbs. cotton and yarn yearly; output, £600,000; spindles, 140,000.

SWEDEN

In 1830 the output of the mills was valued at £200,000 a year. The business may be summed up thus :—

Period	Tons Cotton Consumed	Miles Cloth Made	Value, Millions £		
			Cotton	Manufactures	Net
1821–50	30,000	150,000	2	8	6
1851–60	50,000	250,000	3	9	6
1861–70	50,000	250,000	6	11	5
1871–80	90,000	500,000	7	15	8
1881–87	90,000	500,000	6	13	7
67 years	310,000	1,650,000	24	56	32

Denmark and Norway have no cotton factories, but consume imported goods. In ten years ending 1887 the net imports of cotton manufactured goods averaged thus :—

	£
Denmark	2,200,000
Sweden and Norway	600,000
Total . .	2,800,000

Thus the total consumption of cotton goods in Scandinavia approaches a value of 5 millions sterling per annum.

HOLLAND

The industry may be briefly summed up as follows :—

Period	Tons Cotton Consumed	Miles Cloth Made	Value, Millions £		
			Cotton	Manufactures	Net
1821–50	30,000	150,000	2	8	6
1851–60	25,000	150,000	2	6	4
1861–70	20,000	100,000	3	5	2
1871–80	65,000	350,000	5	11	6
1881–87	70,000	400,000	4	9	5
67 years	210,000	1,150,000	16	39	23

BELGIUM

The business of 67 years was approximately as follows :—

Period	Tons Cotton Consumed	Miles Cloth Made	Value, Millions £		
			Cotton	Manufactures	Net
1821–30	40,000	200,000	3	16	13
1831–40	110,000	600,000	8	36	28
1841–50	120,000	700,000	7	28	21
1851–60	130,000	750,000	8	25	17
1861–70	120,000	700,000	15	29	14
1871–80	200,000	1,100,000	15	33	18
1881–87	170,000	950,000	13	26	13
67 years	890,000	5,000,000	69	193	124

The report for 1835 showed that 60,000 operatives turned out goods to the value of £3,400,000 sterling. At present Belgium produces a little more cotton goods than she requires, the net exports for ten years ending 1887 averaging £200,000.

SWITZERLAND

The business since 1820 sums up approximately thus :—

Period	Tons Cotton Consumed	Miles Cloth Made	Value, Millions £		
			Cot-ton	Manu-factures	Net
1821–40	80,000	450,000	6	33	27
1841–50	90,000	500,000	5	20	15
1851–60	120,000	650,000	7	21	14
1861–70	100,000	550,000	13	24	11
1871–80	200,000	1,100,000	15	33	18
1881–87	160,000	900,000	10	22	12
67 years	750,000	4,150,000	56	153	97

UNITED STATES

The first cotton-mill was founded at Providence, Rhode

The growth of this manufacture is shown as follows :—

Year	No. of Mills	Spindles	Looms	Operatives	Cotton, Million Lbs.	Capital, Mill. Stg.	Wages, Mill. Stg.	Cotton, Mill. Stg.	Product, Mill. Stg.
						£	£	£	£
1830	801	1,240,000	33,000	62,000	77	8	2	...	8
1840	...	2,200,000	...	72,000	135	...	...	...	10
1850	1,094	3,000,000	...	92,000	288	15	3	7	14
1860	1,091	5,240,000	126,000	122,000	390	21	5	12	24
1870	956	7,130,000	157,000	135,000	400	25	7	19	30
1880	756	10,650,000	226,000	173,000	768	43	9	21	44
1888	...	13,500,000	...	...	1,010	...	...	...	60

The industry in the United States may be summed up thus approximately :—

Period	Tons Cotton Consumed	Miles Cloth Made	Value, Millions £		
			Cot-ton	Manu-factures	Net
1821–30	160,000	900,000	11	43	32
1831–40	490,000	2,800,000	31	109	78
1841–50	990,000	5,700,000	49	160	111
1851–60	1,550,000	8,800,000	84	218	134
1861–70	1,970,000	11,200,000	223	376	153
1871–80	2,320,000	13,300,000	157	337	180
1881–87	2,780,000	16,200,000	150	320	170
67 years	10,260,000	58,900,000	705	1,563	858

In ten years ending 1887, the imports of cotton manufactures averaged £5,800,000, the exports £2,500,000. The consumption between home-made and imported goods in 1887 amounted to £52,300,000 sterling.

The cotton crop proceeds from 11 States, and is given by Ellison as follows :—

	Million Lbs.						
	1800	1820	1840	1860	1870	1880	1888
North Carolina	4	10	52	58	58	175	177
South Carolina	16	44	62	141	90	235	267
Georgia . . .	10	40	163	281	190	366	463
Virginia . . .	5	8	10	22	1	26	6
Tennessee . . .	1	18	27	119	73	149	176
Alabama . .	...	20	117	396	172	315	456
Mississippi .	...	10	196	481	226	433	524
Louisiana . .	...	10	152	311	140	228	220
Texas . . .	...	...	...	172	140	362	807
Arkansas . .	...	...	6	151	99	274	297
Florida . . .	...	...	12	26	16	25	30
Total crop . .	36	160	797	2,158	1,205	2,588	3,423
Exported . .	20	128	661	1,760	806	1,820	2,385
Consumption .	16	32	136	398	399	768	1,038

The above figures from 1840 to 1870 differ somewhat from those of the

Island, in 1790, and power-looms were first used at Waltham in 1815. The consumption of raw cotton in 1810 was 5 million lbs.

Mr. Atkinson's report on the cotton-mills of Massachusetts shows, since 1830, as follows :—

Year	Average Wages per Operative	Yards Cloth per Operative	Cost of Work, Pence per 100 Yards
	£		
1830	34	8,300	98
1840	36	9,600	91
1850	40	12,200	78
1860	41	21,800	46
1870	49	19,900	59
1 80	54	28,000	47
1884	60	28,000	54

INDIA

The first cotton-mill was established at Bombay in 1851 ; there were 51 mills in 1876, with 40,000 operatives and 1,240,000 spindles, since which year 46 mills have been built, besides 10 more now in course of construction. In June 1889 there were 124 mills, with 92,000 operatives, 19,000 looms, 2,760,000 spindles, consuming yearly 353 million lbs. The capital employed is about £8,800,000 sterling. Cotton-growing covers an area of 14,530,000 acres, of which 5½ millions in Bombay and Scinde : about 30 per cent. of the crop is exported, the rest consumed in India.

CRIME

The following table is from Professor Bodio's international records of crime, mostly for the years 1876–84 :—

	Number of Crimes, Annual Average				
	Murder	Wound-ing	Robbery	Various	Total
France . .	701	21,404	36,140	3,610	61,855
Germany .	610	54,250	31,480	10,550	96,890
Italy . . .	2,902	48,620	49,860	1,420	102,802
Spain . .	1,330	7,310	9,513	245	18,398
Total .	5,543	131,584	126,993	15,825	279,945

	Number of Criminals Tried, Annual Average				
	Murder	Wound-ing	Robbery	Various	Total
England .	294	902	59,220	642	61,058
Scotland .	40	510	10,840	64	11,454
Ireland . .	96	506	5,260	64	5,926
U. Kingdom	430	1,918	75,320	770	78,438
France . .	816	25,780	45,940	4,340	76,876
Germany .	602	70,550	143,810	7,780	222,694
Hungary .	1,682	7,920	14,520	2,452	26,574
Italy . . .	3,712	59,210	62,910	1,540	127,372
Spain . .	1,807	8,985	12,430	280	23,502
Belgium . .	117	11,740	7,880	925	20,662
Total .	9,166	186,055	362,810	18,087	576,118

	Number of Criminals Condemned, Annual Average				
	Murder	Wounding	Robbery	Various	Total
England	148	696	43,100	432	44,376
Scotland	19	434	10,020	53	10,526
Ireland	54	324	3,410	44	3,832
U. Kingdom	221	1,454	56,530	529	58,734
France	582	23,910	41,830	3,880	70,202
Germany	505	57,420	102,260	6,364	166,549
Austria	540	51,160	...	2,060	53,760
Hungary	1,180	5,265	10,270	1,210	17,925
Italy	2,720	44,220	47,220	1,160	95,320
Spain	1,265	7,180	9,920	172	18,537
Belgium	80	9,710	6,110	764	16,664
Total	7,093	200,319	274,140	16,139	497,691

	Criminals Condemned Yearly per Million Inhabitants				
	Murder	Wounding	Robbery	Various	Total
England	6	27	1,665	17	1,715
Scotland	5	116	2,680	14	2,815
Ireland	11	62	662	9	744
U. Kingdom	6	40	1,615	15	1,676
France	16	634	1,110	102	1,862
Germany	11	1,265	2,260	141	3,677
Austria	23	2,320	...	92	2,435
Hungary	67	298	586	68	1,019
Italy	95	1,540	1,662	41	3,338
Spain	83	432	592	10	1,117
Belgium	14	1,760	1,110	136	3,020

The ratios of criminals in the United Kingdom are over-stated by Professor Bodio : see official returns, p. 164.

The number of criminals and offenders in various countries in 1872 per million inhabitants, according to the *Bulletin Statistique,* was as follows :—

	Convictions per Million Inhabitants of each Sex			Detained in all Prisons, per Million Inhabitants of each Sex		
	Males	Females	Both Sexes	Males	Females	Both Sexes
England	800	108	450	2,020	460	1,220
Ireland	323	115	216	950	342	639
France	1,060	174	612	2,100	422	1,260
Prussia	1,600	292	952	...	...	...
Saxony	1,515	336	914	2,440	512	1,455
Austria	915	153	526	1,910	274	1,070
Italy	1,960	54	1,010	5,140	267	2,710
Sweden	1,634	372	983	2,180	470	1,296
Denmark	906	256	575	1,390	386	879
Holland	858	82	464	1,635	207	910
Belgium	394	...	...	1,207	...	...

The number of days of imprisonment suffered yearly (1872) by 10,000 inhabitants was as follows :—

	Males	Females	Both Sexes
England	74	17	45
Ireland	36	13	24
France	66	15	41
Saxony	80	20	54
Italy	72	20	47
Sweden	67	14	40
Denmark	50	13	31
Holland	31	3	17
Belgium	41	6	23

The percentage of old offenders in the number of convicts is :—

	Per 100 Males	Per 100 Females	Both Sexes
England	41	63	44
Ireland	53	76	58
France	...	...	41
Wurtemburg	...	...	50
Russia	8	6	7
Austria	59	51	57
Italy	26	13	24
Spain	18	11	16
Sweden	43	32	40
Denmark	26	24	25
Holland	...	...	80
Belgium	...	...	46
Switzerland	...	...	45

The latest returns of prison population (not including officials) show as follows :—

	Number	Per 100,000 Population	Of 1000 Criminals		Year
			Males	Females	
England	25,100	90	853	147	1887
Scotland	2,074	52	848	152	1887
Ireland	3,300	66	828	172	1881
United Kingdom	30,474	80	845	155	...
France	60,836	158	876	124	1885
Russia	108,840	120	907	93	1887
Austria proper	11,224	50	870	130	1886
Hungary	6,278	38	905	95	1886
Italy	68,828	230	920	80	1887
Belgium	5,711	98	890	110	1887
Holland	3,653	82	896	104	1882
Sweden and Norway	2,794	40	843	157	1887
United States	59,258	120	914	86	1880
Canada	3,024	64	...	...	1887
India	76,510	38	966	34	1887
Japan	63,828	160	950	50	1887
Cape Colony	2,232	150	910	90	1888
Jamaica	749	150	...	...	1888
Singapore	1,276	228	...	...	1888

The percentage of criminals as regards sex in Germany is 826 males to 174 females, and in Denmark 754 to 246.

The prison population of Italy is relatively three times as great as in the United Kingdom.

The percentage of criminals punished yearly for insubordination or misconduct in prison was (1871):—

	Per 100 Males	Per 100 Females		Per 100 Males	Per 100 Females
Great Britain .	51	31	Sweden . .	8	8
France . . .	46	34	Denmark . .	8	4
Prussia . . .	21	14	Holland . .	24	14
Austria . . .	44	13	Belgium . .	14	...
Italy . . .	38	30	Switzerland .	18	21

The classification of crime differs so much in countries that it is almost impossible to make comparisons. As regards murder, some countries include infanticide and all cases of criminal homicide. Statistics on this subject will be found under the various countries in the following pages. Dr. Lombroso found skulls of Italian criminals had 10 per cent. less than ordinary capacity. Dr. Bordier found the reverse in France. Dugdall considers crime in a manner hereditary, and cites the case of Jukes, an Englishman, who emigrated to North America in 1720, and whose descendants numbered 709 persons, including 76 criminals, 128 prostitutes, 142 vagabonds, and 131 blind, insane, and otherwise infirm.

UNITED KINGDOM

The annual average of committals from 1840 was as follows:—

Period	Annual Average of Committals				Number per 100,000 Inhabitants			
	England	Scotland	Ireland	United Kingdom	England	Scotland	Ireland	United Kingdom
1840–49 . . .	27,910	4,045	25,220	57,175	164	149	302	204
1850–59 . . .	23,924	3,860	13,640	41,424	126	130	227	151
1860–69 . . .	19,230	3,315	5,060	27,605	91	104	91	92
1870–79 . . .	15,290	3,110	4,412	22,812	64	89	84	69
1880–89 . . .	14,100	2,450	3,320	19,870	50	70	66	55

The annual average of convictions was:—

Period	Annual Average				Percentage of Convictions to Committals			
	England	Scotland	Ireland	United Kingdom	England	Scotland	Ireland	United Kingdom
1840–49 . . .	21,280	3,029	11,730	36,039	75	75	47	63
1850–59 . . .	18,291	2,902	7,705	28,898	76	74	58	70
1860–69 . . .	14,530	2,463	2,918	19,911	76	74	58	72
1870–79 . . .	11,720	2,190	2,492	16,402	78	71	56	72
1880–89 . . .	10,800	1,910	1,760	14,470	77	77	53	72

The number of criminal convictions has declined 37 per cent. in the last 22 years, viz. :—

Year	Number of Convictions				Per 100,000 Inhabitants			
	England	Scotland	Ireland	United Kingdom	England	Scotland	Ireland	United Kingdom
1867	14,207	2,510	2,733	19,450	64	75	50	63
1877	11,942	2,009	2,300	16,251	48	60	45	48
1889	9,348	1,723	1,225	12,296	32	43	25	33

The number of offenders of all descriptions in the three kingdoms in 1880 was as follows:—

Guilty of	England	Scotland	Ireland	United Kingdom	Per 100,000 Inhabitants			
					England	Scotland	Ireland	United Kingdom
Crimes and offences .	203,600	80,900	55,100	339,600	80	220	104	100
Drunkenness .	172,900	26,900	88,000	287,800	68	73	166	85
Misdemeanour .	301,400	26,700	101,400	429,500	118	72	191	126
Total . .	677,900	134,500	244,500	1,056,900	266	365	461	311

Similar returns for 1887 showed as follows:—

Guilty of	England	Scotland	Ireland	United Kingdom	Per 100,000 Inhabitants			
					England	Scotland	Ireland	United Kingdom
Crimes and offences .	163,359	73,650	34,978	271,987	58	185	70	73
Drunkenness .	162,772	17,621	79,476	259,869	58	45	160	70
Misdemeanour .	366,683	29,133	105,209	501,025	99	75	210	135
Total . .	692,814	120,404	219,663	1,032,881	215	305	440	278

In 1887 there were 237 persons tried for wilful murder, viz., 163 in England, 23 in Scotland, and 51 in Ireland, the last being for the most part connected with agrarian troubles.

The prison population in 1880 was as follows :—

	England	Scotland	Great Britain
Males . . .	23,791	2,063	25,854
Females . .	4,533	1,008	5,541
Total .	28,324	3,071	31,395

	Per 100,000 Inhabitants		
	England	Scotland	Great Britain
Males . . .	189	114	179
Females . .	34	52	36
General . .	109	83	105

In England there are 84 male to 16 female offenders; in Scotland 67 of the former to 33 of the latter.

ENGLAND AND WALES

There are no records of the number of criminals before the present century. Henry VIII. put to death 71,400 persons as criminals during his reign, but most of them were either virtuous or unoffending persons. He hanged 300 beggars in one year for soliciting alms. In the first half of the present century 2734 persons were hanged in England.

For murder	616
For burglary	1235
For incendiarism	147
For forgery, &c.	736
Total . .	2734

Hantute's table of convictions compared with the number of executions shows thus :—

Period	Convictions Yearly	Executed Yearly	Per 1000 Convictions
1801–20	9.600	85	9.0
1821–30	18,100	67	3.7
1831–50	25,000	18	0.7

In one year (1820) no fewer than 46 persons were hanged for forging Bank of England notes, some of which were afterwards asserted to be good. In twenty years ending 1880 there were 279 criminals executed for murder in the United Kingdom, say fourteen yearly.

The number of homicides in England and Wales in 1880 was as follows :—

	Number of Victims		
	Male	Female	Total
Wilful murder . . .	43	54	97
Manslaughter	115	58	173
Infanticide	48	56	104
Total . .	206	168	374

Judicial statistics for ten years ending December 1888 in England and Wales show thus :—

Murders committed	1766
No trace of criminal . . .	1094
Persons tried for murder . . .	672
Acquitted	231
Found insane	142
Sentenced to death . . .	299
Executed	154

Of those sentenced to death, fifty were women, of whom only nine were executed.

The total number of offenders punished in 1887 was as follows :—

Criminals	163,359
Misdemeanants	529,455
Total . .	692,814

The nationality of the criminals was as follows :—

English	135,770 = 83.1
Welsh	5,193 = 3.2
Scotch	3,103 = 1.9
Irish	15,928 = 9.7
Foreign	3,365 = 2.1
Total . .	163,359 100.0

The nationality of criminals in 1887 compares with similar returns for 25 years down to 1881 thus :—

	1857–71	1872–81	1887
English	78.2	78.7	83.1
Welsh	2.6	3.0	3.2
Scotch	2.1	2.3	1.9
Irish	14.4	13.6	9.7
Foreign	2 7	2.4	2.1
Total . .	100.0	100.0	100.0

The nature of the crimes for which they were punished in 1887 was :—

Murder	163	Grave crimes . . .	5,863
Shooting or stabbing .	970	Robbery	47,223
Burglary	3,852	Assault	75,873
Attacks on women .	878	Sundry	34,400
Total . . .	5,863	Total . .	163,359

The sentences passed on the criminals were :—

Death	35
Penal servitude	948
Imprisonment	162,376
Total . .	163,359

In 1880 the ratio of ages in local prisons was as follows :—

Under 21 years	20.6
21 to 40 ,, ...	54.7
41 to 60 ,, ...	20.8
Over 60 ,, ...	3.9
Total . .	100.0

The sexes of all classes of offenders and misdemeanants in 1887 showed :—

Males . . .	568,280
Females . . .	124,534
Total . .	692,814

As regards criminals the classification was as follows :—

	Number	Ratio
Able to read	119,993	68.6
Unable to read	43,366	31.4
Total . . .	163,359	100.0
Shopkeepers, &c.	8,445	5.2
Mechanics	23,310	14.3
Operatives	48,353	29.6
Vagrants, &c.	83,251	50.9
Total	163,359	100.0

There are 60 local prisons which admitted in 1887 : —

	Number	Ratio
New offenders	96,112	55.6
Convicted up to ten times . .	62,024	36.0
Convicted over ten times . .	14,311	8.4
Total	172,447	100.0

The proportion of sexes showed as follows : —

	Number	Ratio
Males	131,812	76.7
Females	40,635	23.3
Total	172,447	100.0

The record for 1887 showed thus : —

	Local Prisons	Convict Prisons
Served time . . .	156,406	2,038
Committed suicide . .	12	4
Died	117	73
Sent to lunatic asylums .	169	5
Sent to convict prisons .	1,347	...
Remaining, December 31st	14,396	6,413
Total . . .	172,447	8,533

Of those who served their time out in convict prisons and were liberated, only 617 really finished the term of sentences, 1421 being released on "ticket-of-leave."

The cost of maintenance and the proceeds of labour in the sixty local and ten convict prisons in 1887 showed : —

	Maintenance	Labour Proceeds
	£	£
Local prisons . . .	340,000	116,000
Convict prisons . .	245,000	145,000
Total . .	585,000	261,000

The mean prison population and the cost per criminal were : —

	Criminals, Number	Cost per Annum
		£ s. d.
Local prisons . . .	15,119	22 10 0
Convict prisons . .	6,800	36 14 0
Total . .	21,919	26 12 0

The cost in 1868 averaged £33 per criminal.

The criminal population of England and Wales is shown thus : —

In prison	21,919
In reformatories	3,230
Adult criminals at large	28,730
Juvenile criminals at large . . .	4,870
Total . . .	58,749

As regards the inmates of convict prisons, 11 per cent. of the men and 34 per cent. of the women have been convicted ten times or upwards. During the year 1889 there were 1512 juvenile convicts sent to reformatories.

SCOTLAND

The prison population has been as follows : —

Year	Males	Females	Total	Per 100,000 Inhabitants
1840	1,362	686	2,048	80
1850	2,042	1,017	3,059	108
1860	1,106	1,059	2,165	71
1870	1,726	1,099	2,825	83
1888	2,065	1,008	3,073	83
1887	...	...	2,074	52

The record for 1887 was composed thus : —

Murder	23
Burglary	948
Robbery	11,119
Assault, &c.	61,560
Total . . .	73,650

The classification of offences and misdemeanours being different from that used in England and Ireland, the number of crimes and offences appears unduly high. The local and convict prisons admitted in 1887 offenders of both sexes to the number of 46,108 ; the cost of prison maintenance reaching £127,000, or about £40 per inmate.

IRELAND

The record for 1887 showed as follows for persons tried : —

Murder	51	Crimes	1,213
Shooting, &c.	171	Offences	33,765
Burglary	135	Drunkenness . .	79,476
Assault, &c. . . .	856	Sundry	105,209
Crimes . . 1,213		Total . .	219,663

The following classifications are given : —

	Per Cent.	
	Men	Women
Able to read . . .	70	53
Unable to read . . .	30	47
Total . .	100	100

There are 4 convict and 26 local prisons, the admissions to which showed : —

	Per Cent.	
	Men	Women
New offenders . . .	47	24
Convicted up to 10 times .	37	23
Convicted over 10 times .	16	53
Total . .	100	100

The maintenance of the prisons in 1887 cost £124,000.

FRANCE

Official returns since 1826 are as follows : —

Period	Convictions Yearly for Crime	For Crimes and Offences
1831–40	5,486	55,100
1841–60	4,970	97,200
1861–70	3,572	119,500
1871–80	3,650	132,500
1883–87	3,105	206,400

The number of crimes and offences compared with population was as follows :—

Period	Per Million Inhabitants			Convicts in Penal Servitude	
	Crimes	Offences	Total	Number	Per Million Inhabitants
1830–40	230	2,080	2,310	16,820	511
1841–60	195	3,610	3,805	18,330	515
1861–70	110	3,870	3,980	18,210	489
1871–80	120	4,320	4,440	16,630	458
1883–87	81	5,390	5,471	13,380	352

The annual ratio of some of the graver crimes is shown as follows :—

Period	Arson	Infanticide	Assault on Girls	Murder
1826–30	87	120	136	10
1831–40	122	184	196	64
1841–50	194	247	383	80
1851–60	225	347	638	116
1861–70	202	343	744	116
1871–80	180	296	758	70

Before 1860 the law against criminal assaults regarded only girls under eleven, but since that year it was extended to the age of thirteen. The above return of murders only comprises those of the most aggravated character ; the real number is much greater. In 1880, for example, there were 645 murders and homicides, against 808 in the United Kingdom.

The classification of criminals since 1826 has been as follows :—

The following table shows the total number of persons tried :—

Year	Tried			Condemned	Per 1000 Population
	Law Courts	Police	Total		
1831	372,000	105,000	477,000	426,000	13.3
1840	373,000	228,000	601,000	549,000	16.1
1850	486,000	306,000	792,000	736,000	21.0
1860	431,000	509,000	940,000	894,000	24.2
1870	337,000	234,000	571,000	549,000	14.4
1880	598,000	424,000	1,022,000	995,000	26.5
1885	675,000	467,000	1,142,000	1,111,000	29 4

The prison population at various dates was thus :—

Year	Galleys	Prisons	Reformatories	Total
1852	6,800	47,000	6,400	60,200
1860	3,600	42,100	8,600	54,300
1870	2,600	33,600	6,800	43,000
1880	11,700	40,600	9,000	61,300
1884	13,400	40,000	7,000	60,400

The prison population in 1885 was :—

Males . . . 53,299	Prisons . . . 47,456
Females . . . 7,537	Penal colonies . 13,380
Total . 60,836	Total . . 60,836

In December 1880 there were 13,927 at the galleys, viz. :—

First offenders . . . 2,891	=	20.9 per cent.
Up to 3 convictions . 4,733	=	34.0 ,,
Over 3 convictions . . 6,303	=	45.1 ,,
Total . . 13,927	=	100.0 ,,

Period	Sexes per Cent.		Percentage of Age			Per Cent.		Per Cent.	
	Males	Females	Under 21	21–40	Over 40	Married	Unmarried	Able to Read	Unable
1826–30 . . .	81	19	18	58	24	...	...	39	61
1831–40 . . .	83	17	17	60	23	42	58	42	58
1841–50 . . .	83	17	17	57	26	45	55	48	52
1851–60 . . .	82	18	16	56	28	47	53	56	44
1861–70 . . .	84	16	16	54	30	46	54	61	39
1871–80 . . .	83	17	18	54	28	45	55	67	33

The proportion of "recidivistes" or old offenders has increased as follows :—

| 1826 . . . 10 per cent. | 1870 . . . . 41 per cent. |
| 1850 . . . 28 ,, | 1880 . . . . 48 ,, |

The number of criminals to each class in society was as follows :—

	Per Million Persons	
	Male	Female
Unmarried	400	90
Married	200	30
Widowed	240	40

In eight years ending 1868 the number to each class was as follows :—

Criminals per Million

Husband with child . . 186	Widower with child . . 237
Wife with child . . . 32	Widow with child . . 44
Husband without child . 287	Widower without child . 262
Wife without child . . 60	Widow without child . 35

	Per Million	
	Males	Females
Unmarried	590	100
Married	200	35
Widowed	270	50

Age	Per Million		
	Males	Females	Both Sexes
7–21	230	50	90
21–40	370	75	240
41–60	180	35	130
Over 60	100	10	60

The general ratio was 100 criminals in rural population and 220 in towns per million inhabitants.
The rank and position of French criminals was :—

Men of fortune	6 per cent.
Servants	13 ,,
Tradesmen . . .	14 ,,
Artisans, &c. . . .	67 ,,
	100.0 ,,

Criminals under sixteen years of age in 1859 were :—

Guilty of	Boys	Girls	Total
Murder . . .	6	3	9
Wounding . . .	269	50	319
Robbery, &c. . .	6,887	1,706	8,593
Total . .	7,162	1,759	8,921

The number of criminals of all ages tried annually in the term of five years ending 1880 was as follows :—

Males . . 3,682 = 200 per million of population
Females. . 692 = 40   ,,   ,,

Total . 4,374 = 120   ,,   ,,

In a period of 47 years ending 1880 sentence of death was passed on 1775 murderers, of whom 205 were women ; they were as follows :—

1833-40	.	.	.	326	1861-70 . . . 193
1841-50	.	.	.	485	1871-80 . . . 272
1851-60	.	.	.	499	
					48 years . . . 1,775

The ratio of age of the above murderers was :—

					Number	Ratio
Under 21	.	.	.	.	106	6.2
21-40	.	.	.	.	1,182	66.2
41-60	.	.	.	.	420	24.1
Over 60	.	.	.	.	67	3.5
	Total	.	.		1,775	100.0

Only 1067 were actually executed, 671 being commuted, and 37 dying in prison, for the most part of suicide.

In the year 1885 the number of prisoners sent to hospital was equal to 67 per cent. among the men and 60 per cent. among women.

Prison diet consists of 5 oz. of bread and 13 oz. vegetables and potatoes daily, with a meat ration of 4 oz. twice a week.

GERMANY

In 1886 the criminal records of the Empire were :—

	Accused	Condemned	Under 18 Years of Age	Condemned	
				Men	Women
Murder . .	337	298	18	231	67
Assault . .	56,785	42,586	720	31,188	11,398
Burglary .	19,325	15,983	509	13,880	2,103
Robbery .	104,206	88,816	17,266	64,668	24,148
Fraud . .	17,628	13,609	1,195	10,825	2,784
Perjury . .	3,330	2,948	345	2,425	523
Embezzlement }	18,025	14,731	1,514	11,639	3,092
Various . .	213,171	174,029	9,946	156,578	17,451
Total .	432,807	353,000	31,513	291,434	61,566

It appears that women formed less than 18 per cent. of the total number of convicts, but as regards robbery their ratio was much higher, namely, 27 per cent. Convicts under 18 years of age were 9 per cent. of the total.

The condemned persons belonged to the following States :—

Against	Prussia	Bavaria	Saxony	Wurtemburg	Baden	Duchies	Total
Person	79,839	24,147	5,786	4,968	3,891	15,388	134,019
Property	97,864	20,433	10,675	5,636	5,170	18,745	158,523
Public order	39,011	5,084	3,976	3,013	1,435	7,939	60,458
Total . .	216,714	49,664	20,437	13,617	10,496	42,072	353,000

Of the above offenders 102,800, say 29 per cent., had been previously convicted. The number of persons convicted compared with the population over twelve years of age gave the following ratios per 10,000 :—

Against	1882	1883	1884	1885	1886
Person . . .	34	35	39	39	41
Property . . .	53	51	51	49	48
Order . . .	16	16	17	17	18
Total . .	103	102	107	105	107

The ratios in 1886 were as follows :—

	Offenders per 10,000 Population over 12 Years Old ; against—			
	Person	Property	Order	Total
Prussia	40	49	20	109
Bavaria	62	53	13	128
Saxony	26	47	18	91
Wurtemburg . . .	35	40	22	97
Baden	34	45	13	92
Hesse	39	32	12	83
Mecklenburg . . .	20	31	16	67
Oldenburg . . .	20	34	14	68
Brunswick	31	43	15	89
Hamburg	28	61	25	114
Bremen	35	72	36	143
Alsace	41	32	25	98

In a term of 14 years ending 1852 the number of criminals and offenders in Saxony averaged yearly as follows :—

Age	Per Million Persons	
	Males	Females
16-20 . . .	900	180
21-30 . . .	2,100	400
31-40 . . .	2,300	600
41-50 . . .	1,300	250
51-60 . . .	800	160
Over 60 . . .	300	60

The number of male criminals and offenders per million male inhabitants rose as follows in Saxony :—

Period	Per Million
1832-44	1,170
1845-54	1,280
1872	1,515

In a period of 10 years ending 1879, the number of criminals found guilty of wilful murder in Prussia, Bavaria, and Austria was :—

	Number	Per Annum
Prussia . . .	484	48
Bavaria . . .	245	25
Austria . . .	816	82
Total . .	1,945	195

Only 23 of the above assassins suffered death, namely, 16 in Austria and 7 in Bavaria.

In Prussia during a term of 14 years ending 1874 the number of murders yearly committed showed as compared with population thus :—

Committed by men . . 30 per million
Committed by women . 10 ,, ,,

RUSSIA

Statistics for 1887 may be summed up thus :—

Before	Convictions	Sentence	
Senate	10,800	Exile	20,590
Supreme courts	172,100	Penal servitude .	58,020
Divisional . . .	207,000	Hard labour, &c.	1,097,190
Police	785,900		
		Total . .	1,175,800
Total . .	1,175,800		

The prison population was made up thus :—

Convicts .	82,570	Males .	98,710	In Russia .	75,350
Untried .	26,270	Females .	10,130	Siberia, &c.	33,490
Total .	108,840	Total .	108,840	Total .	108,840

AUSTRIA

The criminal records of Austria proper in 1886 showed :—

For	Supreme Court		For	Police and other Courts	
	Accused	Con-demned		Accused	Con-demned
Murder .	379	274	Fraud .	25,030	13,083
Assault .	5,702	4,787	Theft .	184,182	124,521
Fraud .	3,920	2,689	Assault .	148,186	98,843
Robbery .	17,383	15,054	Disorder	130,753	87,881
Various .	8,750	6,902	Sundry .	549,952	234,115
Total .	36,134	29,706	Total .	1,038,103	558,443

The sentences passed on the condemned persons were :—

Supreme Court		Lower Courts	
Death . . .	5	8 to 30 days .	83,663
Galleys for life	27	Over 30 days .	13,254
5 to 20 years .	574	Fined . . .	368,311
1 to 5 years .	4,147	Reprimanded .	980
Under 12 months .	24,953	...	...
Total . .	29,706	Total . .	558,443

The age and condition of the greater criminals were :—

	Age		Males	Females	Total
Under 20	5,287	Single .	15,113	2,318	17,431
20 to 30 .	12,370	Married .	9,767	1,553	11,320
30 to 60 .	11,328	Widowed	572	383	955
Over 60 .	721	...	...	...	...
Total .	29,706	Total .	25,452	4,254	29,706

The reformatories contain 3046 boys and 279 girls. The ratios of sex among all persons condemned in 1886 were :—

	Supreme Court	Lower Courts
Males . . .	85.7	81.5
Females . . .	14.3	18.5
Total . .	100.0	100.0

Prison population was as follows :—

	1882	1886
Males . . .	10,139	9,785
Females . . .	1,598	1,439
Total . .	11,737	11,224

There are 21 penal establishments, of which six are for women.

HUNGARY

The records for 1886 show the number of persons condemned as follows :—

	Males	Females	Total
Supreme court .	17,817	2,393	20,210
Divisional . . .	44,113	14,891	59,004
Correctional . .	29,583	6,501	36,084
Police	220,026	35,032	255,058
Total . .	311,539	58,817	370,356

The crimes tried and sentences passed at the Supreme Court were :—

Crimes		Sentences	
Murder .	190	Death	20
Incendiarism	132	Imprisonment over 5 years	771
Assault .	2,502	,, 1 to 5 years	5,119
Robbery .	4,905	,, 6 to 12 months	5,505
Various . .	12,481	,, under 6 months	8,795
Total	20,210	Total . .	20,210

The convictions in the Divisional and Correctional Courts were as follows :—

	Divisional			Correctional		
	Males	Females	Total	Males	Females	Total
Theft . .	8,830	2,021	10,851	7,766	1,455	9,221
Assault . .	7,304	541	7,845	6,114	406	6,520
Disorder .	9,256	1,815	11,071	7,224	1,204	8,428
Fraud . .	2,552	580	3,132	1,156	224	1,380
Various .	16,171	9,934	26,105	7,323	3,212	10,535
Total	44,113	14,891	59,004	29,583	6,501	36,084

The sentences passed in the above courts and that of Police were :—

Imprisonment	Divisional	Correctional	Police	Total
Over 6 months	...	885	...	885
1 to 6 months .	3,340	2,656	2,230	8,226
14 to 30 days .	7,934	6,242	5,080	19,256
1 to 14 days .	24,505	26,301	44,850	95,656
Fined .	23,225	...	134,400	157,625
Reprimanded .	...	...	68,498	68,498
Total .	59,004	36,084	255,058	350,146

Criminals condemned at the Supreme Court and offenders at the Divisional Court were classified thus according to age :—

Age	Criminals			Offenders		
	Males	Females	Total	Males	Females	Total
Under 20	2,574	393	2,967	4,592	1,333	5,925
20–30	7,923	925	8,848	19,054	6,129	25,183
30–60	6,950	1,013	7,963	19,654	7,192	26,846
Over 60	370	62	432	813	237	1,050
Total	17,817	2,393	20,210	44,113	14,891	59,004

The condition of the criminals was :—

	Males	Females	Total	Prison Population	
Married .	9,412	1,228	10,640	Males .	5,678
Single . .	7,792	825	8,617	Females .	600
Widowed	613	340	953		
				Total	6,278
Total	17,817	2,393	20,210		

ITALY

Averages for nine years ending 1884 give as follows :—

	No. of Crimes	Criminals Tried	Convicted	Per 100,000 Population
Murder . .	2,902	3,712	2,720	10
Stabbing, &c.	48,620	59,210	44,220	154
Robbery . .	49,860	62,910	47,220	166
Sundry . .	1,420	1,540	1,160	4
Total	102,802	127,372	95,320	334

In 1887 the convictions and prison population were as follows :—

Convictions		Prison Population			
Assize court }	5,546	Males	63,365	In Prison	34,264
Minor courts }	309,813	Females	5,473	Penal servitude }	34,564
Total	315,359	Total	68,828	Total	68,828

Among those in prison are included 5477 children in reformatories, viz. :—

Boys	3,633
Girls	1,844
Total . . .	5,477

Murder, or rather homicide in some form, constitutes a principal feature in Italian crime. The number of such crimes was :—

Year	Murders
1871	5,297
1872	4,524
1875	3,408

In 1875 the prisons of Italy admitted the following criminals :—

Age	Number			Ratio		
	Males	Females	Total	Males	Females	Both Sexes
Under 21	39,150	5,100	44,250	22.8	14.8	21.5
21-30 . .	54,500	11,040	65,540	31.7	32.0	31.8
31-40 .	37,300	8,960	46,260	21.7	25.9	22.4
Over 40 .	41,250	9,400	50,650	23.8	27.3	24.3
Total .	172,200	34,500	206,700	100.0	100.0	100.0

The cities of Italy stand for 32 per cent. of the population, and 42 per cent. of the crime. The predominance of crime in towns is therefore notably less than in France. The nature of crimes in 1875 was as follows :—

	Number		Ratio
Against the person . . .	51,000	...	36.4
Against property . . .	88,000	...	63.6
Total . .	139,000		100.0

In December 1875 the prisons and reformatories held 53,500 criminals, having admitted 356,500 during the year. The classes of prisoners were :—

	Per Cent.
Agricultural	65
Operatives	30
Tradesmen, &c.	5
	100

In ten years ending 1876 there were 392 murderers sentenced to death, but only 34 were executed.

The proportion of convicts who die under sentence is as follows :—

5 years penal servitude . . .	29 per cent.
10 „ „ „ . . .	42 „
15 „ „ „ or upwards .	80 „

In Italy the average number of crimes in the years 1874-76 was 7085, of which 2470 were murders or homicides.

BELGIUM

Judicial records give the following :—

Court	Cases Tried			
	1835	1850	1870	1887
Civil . . .	8,463	7,896	15,482	27,136
Correctional	25,337	24,752	26,640	47,942
Police . .	19,209	49,890	70,179	132,011
Total .	53,009	82,538	112,301	207,089
Sentences				
Acquitted . .	9,877	10,083	12,662	23,285
Galleys . .	137	134	43	72
Imprisonment .	8,511	21,442	19,498	44,993
Fine . . .	34,484	50,879	80,098	138,739
Total .	53,009	82,538	112,301	207,089

SENTENCES

The following tables show the convictions for crime and the prison population :—

Year	Number of Convicts	Per 10,000 Inhabitants
1840 . . .	9,012	23
1850 . . .	11,133	25
1860 . . .	10,810	23
1876 . . .	12,420	24

Year	Prison Population		
	Males	Females	Totals
1840 . . .	4,365	427	4,792
1860 . . .	5,104	838	5,942
1870 . . .	4,202	499	4,701
1887 . . .	4,162	509	4,671

The above prison population is exclusive of 1040 juvenile offenders detained in reformatories.

SERVIA

In 1887 were tried 7538 criminals, with this result :—

Imprisoned	2,567
Fined	3,130
Acquitted	1,841
Total . .	7,538

Prison population at end of the year was 1725.

SCANDINAVIA

The convictions for 1881 and 1887 show as follows :—

Tried for	Sweden		Norway	
	1881	**1887**	**1881**	**1887**
imes . .	9,608	9,157	3,318	2,932
ffences . .	48,598	45,404	25,369	22,664
Total .	58,206	54,561	28,687	25,596
ales . .	54,792	51,491	26,684	23,639
emales . .	3,414	3,070	2,003	1,957
Total .	58,206	54,561	28,687	25,596

Denmark showed 3525 persons convicted of crime in
85, including 872 women.

EGYPT

The records for five years are as follows :—

	1888		*Average Four Years*
Crimes . . .	1,144	....	530
Offences . . .	32,236	....	17,710
Total .	33,380		18,240

The above does not include Upper Egypt.

AUSTRALIA

Official returns are as follows :—

Year	Arrests	Committals	Convictions	Per 10,000 Pop.		
				Arrests	Committals	Convictions
861. . . .	53,570	2,745	1,656	433	22	13
871. . . .	68,800	2,617	1,557	362	14	8
881. . . .	117,130	3,361	2,024	432	12	7
888. . . .	130,250	3,630	2,212	365	10	6

Arrests include all manner of crimes and offences ; com-
ittals only crimes. The several colonies showed thus
1888 :—

	Arrests	Committals	Convictions	Convictions per 10,000 Population
New South Wales	42,580	1,423	915	8.3
Victoria . . .	37,310	873	557	5.1
Queensland . .	18,430	538	275	7.0
outh Australia .	6,600	190	91	2.9
New Zealand . .	19,170	499	308	5.1
Tasmania . . .	6,160	107	66	4.4
Total . .	130,250	3,630	2,212	6.2

CANADA

The records for 1888 may be summed up thus :—

Crimes			*Offences*		
Accused . . .	5,867	Fined . . .	31,276
Acquitted . .	2,120	Imprisoned . .	2,626
Convicted .	3,747	Total .	33,902

The prison population in December 1887 was 3024,
ay 64 per 100,000 inhabitants.

CAPE COLONY

The official returns for 1888 were as follows :—

Prison Population				Convictions in 1888	
Coloured .	2,012	Males . .	2,032	Crimes .	1,408
White . .	220	Females .	200	Offences .	39,172
Total .	2,232	Total .	2,232	Total .	40,580

The prison population was equal to 150 per 100,000
inhabitants.

INDIA

The returns for all classes of criminals and offenders
in 1887 compare with those for 1881 as follows :—

	1881	**1887**
Tried	1,172,000	1,377,000
Acquitted	527,000	703,000
Convicted	645,000	674,000
Fined	468,000	500,000
Imprisoned	177,000	174,000

The prison population in the same years was as
follows :—

	1881	**1887**
Males	83,429	73,940
Females	3,888	2,570
Total . .	87,317	76,510

There were 15,259 criminals whipped in 1887, against
75,200 in 1878. The prison population is only 38 per
100,000 inhabitants, or less than half the ratio that pre-
vails in the United Kingdom.

ALGERIA

In 1886 the records showed as follows :—

Convictions		Sentence	
Criminal courts . .	12,408	Imprisonment . .	17,502
Police courts . . .	59,981	Fine	54,887
Total . .	72,389	Total . .	72,389

MINOR COLONIES

	Crimes	Offences	Total	Per Million Inhab.	Year
Mauritius . .	129	13,707	13,836	381	1888
Jamaica . .	2,412	8,119	10,531	176	1887
Singapore . .	227	36,111	36,338	179	1888
Hong-Kong .	99	9,932	10,031	478	1888
Ceylon . . .	1,330	12,961	14,291	48	1886

UNITED STATES

The number of offenders in prison at the following
dates, according to Census returns, was :—

Year	Number	Per Million Inhabitants
1850	6,737	292
1860	19,086	610
1870	32,901	875
1880	59,258	1,180

The Census of 1880 classified offenders as follows :—

Males . .	54,190	Americans	46,348	White .	42,280
Females .	5,068	Foreigners	12,910	Coloured	16,978
Total .	59,258	Total .	59,258	Total .	59,258

The *Chicago Tribune* gives the following statistics of murders and executions in the United States since 1884 :—

Year	Murders	Legal Executions	Lynchings
1884 . . .	3,377	103	219
1885 . . .	1,808	108	181
1886 . . .	1,499	83	133
1887 . . .	2,335	79	123
1888 . . .	2,184	87	144
1889 . . .	3,567	98	175
Total .	14,770	558	975

There are four States in which capital punishment is not allowed: Maine, Rhode Island, Wisconsin, and Michigan.

CURIOSITIES

Prices paid in recent times have been for—

Books.—Mr. Quaritch paid £4900 for a Latin Psalter, and £3900 for a Mazarin Bible at Syston Hall sale.

Coins.—In 1889 a silver penny of William the Conqueror fetched £32, a half-crown of Elizabeth £44, and one of Charles I. £35 sterling.

Letters and Autographs.—In 1889 at public sale in London the following prices were paid :—

	£		£		£
Addison . .	5	Franklin . .	6	Pope . . .	16
Bolingbroke .	9	Gibbon . .	6	Quincey . .	7
Bruce (trav.) .	6	Hood . . .	6	Richelieu . .	5
Burke . . .	8	Hume . . .	5	Schiller . .	6
Burns . . .	18	Irving, W. .	2	Scott . .	17
Byron . . .	7	Johnson, S. .	6	Shelley . .	19
Carlyle . . .	4	Kean, E. . .	9	Smollett . .	8
Coleridge . .	3	Keats . .	14	Sterne . .	8
Dickens . . .	9	Lamb, C. . .	6	Tennyson . .	7
Disraeli . .	5	Nelson . .	11	Thackeray .	6
Elizabeth, Q.	11	Newton . .	64	Washington .	10
Elliot, G. . .	11	Poe, E. . .	6		

Manuscripts.—That of Burns's poem "Scots Wha Hae" was sold in London in May 1890 for £70 ; that of Wilkie Collins's novel "The Woman in White," on the same occasion, for £320.

Postage Stamps.—A collection was sold in Paris in 1880 for £8000 sterling ; the purchaser was said to be the Duchess Galiera, otherwise known for her princely donations to the poor of Genoa.

Violins.—At a sale in Paris in 1887 the following prices were paid :—

				Date	£
Stradivarius	. . . .		.	1689	760
,,	. . .	.	.	1691	480
Ruggeri .	. .	.	.	1650	1,280

A violin bow by Tourte fetched £44 sterling.

Walking-Stick.—That of George IV. was sold at auction in July 1890 for £18 sterling.

CUSTOMS

The following table shows the customs revenue of nations :—

	Amount, £		Ratio to Total Commerce		Shillings per Inhabitant	
	1871–80	1887	1871–80	1887	1871–80	1887
			Per Cent	Per Cent.	Per Cent.	Per Cent.
United Kingdom . .	20,110,000	19,900,000	3.36	3.10	12.5	10.5
France	10,320,000	13,400,000	3.78	4.45	5.7	7.0
Germany	8,640,000	12,700,000	3.28	4.10	4.0	4.5
Russia	10,525,000	10,200,000	10.02	10.20	3.0	2.2
Austria	2,610,000	3,000,000	2.38	2.40	1.5	1.6
Italy	5,080,000	10,000,000	5.80	11.00	3.6	6.5
Spain	4,410,000	3,600,000	12.10	6.00	5.5	4.2
Portugal	1,790,000	3,400,000	15.22	41.00	8.5	18.0
Belgium	780,000	1,200,000	0.87	1.10	3.1	4.0
Holland . . .	415,000	400,000	0.36	0.20	2.2	2.0
Denmark	950,000	1,200,000	5.42	5.70	10.0	12.0
Sweden and Norway .	2,390,000	2,600,000	7.05	6.10	7.6	8.0
Europe	68,020,000	81,600,000	3.90	4.10	4.4	5.5
United States . . .	26,030,000	44,600,000	13.10	15.00	12.0	15.0
Canada	2,715,000	4,800,000	8.23	11.20	13.0	18.5
Australia	4,250,000	7,500,000	6.11	7.50	34.0	45.0
Brazil	6,680,000	9,200,000	20.32	21.00	13.1	15.0
India	2,220,000	3,200,000	2.33	2.20	0.2	0.3
Egypt	780,000	800,000	4.51	4.00	4.0	4.0
The world . . .	110,695,000	151,700,000	5.10	5.60	3.9	5.2

The British customs revenue is shown as follows :—

Year	£	Ratio to Commerce	Shillings per Inhabitant
1580 . .	14,000	0.42	0.1
1614 . .	178,000	4.22	0.8
1684 . .	530,000	6.70	2.0
1720 . .	1,555,000	10.40	5.1
1800 . .	6,788,000	10.02	13.0
1827 . .	21,009,000	23.10	18.1
1844 . .	24,277,000	20.05	18.0
1866 . .	21,276,000	4.95	14.2
1881 . .	19,184,000	3.36	11.4
1888 . .	20,100,000	2.93	10.5

In 1883 the incidence of British Customs was estimated :—

	Amount Paid by Classes			Total Amount
	Rich	Middle	Working	
	£	£	£	£
Spirits . .	170,000	1,350,000	2,703,000	4,223,000
Wine . . .	455,000	885,000	26,000	1,366,000
Tea . . .	160,000	1,288,000	2,526,000	3,974,000
Coffee . .	11,000	90,000	212,000	313,000
Fruits . . .	35,000	285,000	190,000	510,000
Tobacco, &c.	370,000	2,890,000	5,620,000	8,890,000
Total .	1,201,000	6,808,000	11,267,090	19,276,000

The incidence per head on each class was as follows :—

	Rich	Middle	Working	Total
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Spirits . .	0 2 11	0 2 10	0 2 3	0 2 5
Wine . .	0 7 10	0 1 10	...	0 0 10
Tea . . .	0 2 9	0 2 9	0 2 1	0 2 3
Coffee . .	0 0 2	0 0 2	0 0 2	0 0 2
Fruits. . .	0 0 7	0 0 7	0 0 2	0 0 3
Tobacco, &c.	0 6 5	0 5 6	0 5 0	0 5 5
Total .	1 0 8	0 13 8	0 9 8	0 11 4

The working classes form 69 per cent., the middle class 28 per cent., and the upper class 3 per cent. of the population of the United Kingdom, as appears from the probate returns (1877).

The duties *ad valorem* on English cotton goods in foreign countries in 1884 were :—

	Per Cent.		Per Cent.
China, Guiana . . .	5	Belgium, Greece . .	15
India, Queensland . .	5	Holland, New Zealand	15
Turkey	7	Austria	18
Cape, Feejee. . . .	10	Canada	20
Tasmania, S. Australia	10	Victoria, Chili . . .	25
Uruguay, W. Indies .	12	Brazil	30
Newfoundland . . .	13	Argentine Republic .	40

The following table shows the British tariff at various epochs :—

DUTIES EXPRESSED IN SHILLINGS

	1787	1819	1834	1888
Bacon, cwt. . . .	47	56	28	...
Books ,, . . .	20	100	100	...
Butter ,, . . .	2½	20	20	...
Cheese ,, . . .	1½	10	10	...
Cocoa ,, . . .	240	280	19	9
Coffee ,, . . .	224	280	140	14
Cotton ,, . . .	9	9	3	...
Eggs ,, . . .	3	6	6	...
Paper ,, . . .	?	94	28	...
Potatoes,, . . .	4	2	2	...
Rice ,, . . .	7	15	15	...
Soap ,, . . .	44	90	90	...
Spirits, gallon. . .	6	22	22	10
Sugar, cwt. . . .	27	63	63	...
Tallow ,, . . .	...	3	1	...
Tea ,, . . .	45	224	240	56
Tobacco,, . . .	392	448	784	392
Wine, gallon . . .	5	14	5½	1
Wool, cwt. . . .	...	56	9	...

Blanks in the above table signify duty-free. Grain was subject to import-dues on a sliding scale, according to market prices in Great Britain, down to 1846.

The customs revenue of China in 1888 reached 6 millions sterling.

D.

DAIRY

The subjoined table shows approximately the number of milch cows and the dairy products of various countries. English cows average 400 gallons of milk yearly, and the butter produce of a good cow is about 140 lbs. In Holland each cow gives about 80 lbs. of butter, and 180 lbs. cheese. New York cows average 330 lbs. cheese, Canadian 280 lbs., and Parma 300 lbs. It takes a gallon of milk to make a pound of cheese.

	Milch Cows	Tons Butter and Cheese	Value of Butter, Cheese, and Milk
			£
United Kingdom	3,400,000	110,000	31,200,000
France	4,800,000	160,000	47,000,000
Germany . . .	6,800,000	200,000	55,300,000
Russia	7,900,000	220,000	47,700,000
Austria. . . .	4,600,000	130,000	34,500,000
Italy	1,600,000	50,000	14,400,000
Spain	1,000,000	30,000	9,300,000
Portugal . . .	200,000	6,000	1,900,000
Sweden . . .	800,000	40,000	7,000,000
Norway . . .	400,000	10,000	3,000,000
Denmark . . .	900,000	60,000	6,400,000
Holland . . .	900,000	80,000	9,500,000
Belgium . . .	600,000	30,000	5,000,000
Switzerland . .	400,000	40,000	4,800,000
Roumania. . .	1,200,000	20,000	4,800,000
Servia	300,000	10,000	2,000,000
Turkey . . .	300,000	10,000	2,000,000
Europe. . . .	36,100,000	1,206,000	285,800,000
United States .	15,900,000	610,000	79,000,000
Canada . . .	1,300,000	100,000	7,500,000
Australia . . .	600,000	30,000	4,000,000
Total . .	53,900,000	1,946,000	376,300,000

The following table shows approximately the consumption of butter and cheese in various countries :—

	Consumption, Tons			Lbs. per Inhab.
	Native	Imported	Total	
U. Kingdom .	110,000	218,000	328,000	19
France . . .	145,000	...	145,000	8
Germany . .	185,000	...	185,000	8
Russia . . .	210,000	...	210,000	5
Austria . . .	130,000	...	130,000	7
Italy	50,000	10,000	60,000	4
Spain . . .	30,000	...	30,000	3
Portugal . .	6,000	1,000	7,000	3
Sweden . .	25,000	...	25,000	11
Norway . .	10,000	3,000	13,000	14
Denmark . .	20,000	...	20,000	22
Holland . .	30,000	...	30,000	15
Belgium . .	30,000	10,000	40,000	15
Switzerland .	15,000	...	15,000	11
Roumania, &c.	40,000	...	40,000	9
Europe . . .	1,036,000	242,000	1,278,000	9
United States	560,000	...	560,000	20
Canada. . .	50,000	...	50,000	22
Australia . .	30,000	...	30,000	17
Total .	1,676,000	242,000	1,918,000	11

UNITED KINGDOM

The annual production of milk in the United Kingdom exceeds 400 gallons per cow, say 1400 million gallons, of which 400 millions are used for making butter and cheese, 600 millions as milk for the table at an average of 16 gallons per inhabitant, and 400 millions in fattening calves, &c. The consumption in London is only a little over 6 gallons per inhabitant. At the churning competition of England in 1889 the average production of

butter was 4 per cent., that is 2½ gallons milk to one pound of butter.

The consumption of dairy products in the United Kingdom has been approximately as follows :—

Year	Native Butter and Cheese, Tons	Tons Imported			Total Con-sumption	Lbs. per Inhabitant
		Butter	Cheese	Total		
1850	90,000	15,000	15,000	30,000	120,000	10
1860	95,000	37,000	26,000	63,000	158,000	12
1870	100,000	52,000	46,000	98,000	198,000	14
1880	105,000	104,000	79,000	183,000	288,000	18
1889	110,000	136,000	82,000	218,000	328,000	19

The item of imported butter in 1889 was made up of 83,000 tons real butter and 53,000 tons margarine.

A farm in Cheshire of fifty milch cows has been found to produce 9400 tons of cheese, equal to 420 lbs. per cow, valued at £750 sterling. The farm covered 200 acres, of which 15 were under wheat, and the farmer's balance-sheet was as follows :—

	Payments, £		Receipts, £
Rent	400	Cheese . .	750
Taxes	60	Pigs . . .	150
Labour (7 hands)	296	Sheep . .	133
Sundries . . .	268	Wheat . .	180
Total . .	1,024	Total .	1,213

This left the farmer a balance of £189 to support his family.

FRANCE

In 1888 the production of milk reached 1660 million gallons, or about 350 per cow. French economists think that about 40 per cent., say 660 million gallons, is used for making butter and cheese, the product of which would be about 360 million lbs. or 160,000 tons. The value of milk is officially put down at 7d. per gallon.

UNITED STATES

The following table shows the official returns of butter and cheese for various years, and an estimate for 1890 :—

Year	Milch Cows	Cheese, Tons	Butter, Tons	Total Product	Con-sumed	Lbs. per Inhab.
1850	6,400,000	47,000	138,000	185,000	178,000	16
1860	8,600,000	46,000	205,000	251,000	237,000	17
1870	10,100,000	68,000	228,000	296,000	268,000	15
1880	12,030,000	121,000	347,000	468,000	394,000	17
1890	15,950,000	160,000	450,000	610,000	560,000	20

DEATHS

The death-rates per 1000 inhabitants yearly were :—

	1861–70	1871–80
England	22.6	21.3
Scotland	22.1	21.8
Ireland	16.8	18.3
United Kingdom .	21.4	21.0
France	22.9	24.3
Germany	...	27.1
Austria Proper . .	30.4	31.2
Hungary	38.7	40.1
Italy	30.1	29.7
Spain	...	29.7
Belgium	22.8	22.6
Holland	24.9	24.3
Denmark	20.1	19.3
Sweden	20.0	18.4
Switzerland . . .	24.0	24.0

The rates in the principal cities (1878-80) were :—

Alexandria	34.2	Dublin	27.1	New York	26.2
Amsterdam	23.7	Edinburgh	20.2	Nottingham	22.4
Baltimore	21.1	Geneva	21.2	Oldham	22.8
Belfast	28.2	Glasgow	25.3	Palermo	28.5
Berlin	27.6	Hamburg	24.5	Paris	28.6
Birmingham	19.8	Havanna	45.7	Philadelphia	20.3
Bombay	33.7	Hull	23.8	Portsmouth	19.7
Bordeaux	26.7	Leeds	21.6	Quebec	22.9
Boston	23.5	Leicester	21.8	Rio Janeiro	39.4
Bradford	21.1	Leipsic	26.1	Rome	26.8
Breslau	32.5	Liverpool	26.7	Rotterdam	23.3
Brighton	19.0	London	21.1	Rouen	31.3
Bristol	19.6	Lyons	24.7	St. Louis	19.3
Brooklyn	25.6	Madras	38.8	St. Petersburg	51.4
Brussels	23.9	Madrid	37.4	San Francisco	18.1
Bucharest	24.5	Manchester	25.5	Sheffield	21.6
Buda-Pesth	35.2	Marseilles	28.0	Stockholm	24.7
Buenos Ayres	30.1	Mexico	30.9	Sunderland	20.9
Calcutta	31.1	Milan	30.6	Turin	25.6
Chicago	27.2	Montreal	37.2	Valparaiso	64.6
Christiania	18.8	Munich	32.8	Venice	22.7
Copenhagen	22.1	Naples	33.1	Vera Cruz	70.5
Cork	26.1	Newcastle	21.8	Vienna	29.0
Dresden	25.4	New Orleans	22.7	Zurich	25.6

The following table shows the death-rate for ages per 1000 inhabitants :—

	Under 5	5–10	10–25	25–45	45–55	55–65	65–75
England . .	63.6	6.6	5.5	10.2	17.4	31.8	64.3
United States	58.8	10.1	5.4	10.8	17.6	27.2	51.4
France . .	75.6	9.2	8.8	12.7	16.6	28.3	66.3
Prussia . .	...	9.2	6.4	11.5	18.6	33.0	64.5
Austria . .	111.7	9.8	6.6	11.3	21.1	41.5	92.8
Switzerland .	...	8.5	6.3	11.6	19.3	38.4	82.5
Italy . . .	110.6	11.6	7.8	11.7	17.3	33.1	70.1
Spain . . .	106.2	11.7	8.8	12.9	23.8	42.0	95.0
Belgium . .	68.1	12.7	8.1	12.9	19.0	32.3	74.5
Sweden . .	57.6	8.0	4.8	8.2	14.7	27.4	62.6
Medium . .	81.5	9.7	6.8	11.4	18.5	33.5	72.4

Under another classification of ages the *Demografia* (1877) gives as follows :—

	Under 1	1–5	5–15	15–30	30–60	Over 60	General	Period
Norway . .	116	29.1	7.2	6.5	11.0	58.9	18.4	1860–68
Sweden . .	150	31.1	6.9	5.9	12.6	70.0	20.5	1861–70
Denmark .	150	23.4	7.4	6.8	13.0	71.4	21.6	1860–69
France . .	216	34.7	7.2	8.6	12.9	68.2	22.8	1856–65
England . .	191	36.7	6.7	8.2	15.7	67.9	22.8	1857–66
Belgium . .	186	36.1	7.7	8.5	13.4	79.1	23.3	1851–60
Holland . .	211	36.4	8.0	8.0	15.4	70.1	25.0	1860–68
Prussia . .	220	46.0	7.2	7.0	15.4	72.7	25.8	,,
Bavaria . .	372	39.8	7.4	8.8	17.3	81.5	29.5	,,
Spain . . .	226	67.8	8.2	8.2	17.0	95.0	29.6	,,
Italy . . .	254	54.7	8.2	8.1	17.0	88.2	30.1	,,
Austria . .	303	40.6	7.3	8.1	17.1	84.0	32.4	,,
Russia . .	312	54.7	9.7	8.6	19.4	78.1	36.8	,,
Scotland . .	157	34.4	7.1	9.3	16.4	67.9	22.3	,,
Portugal . .	139	36.0	7.2	6.0	13.5	80.0	...	1860–62

According to the above table the countries which have the highest and the lowest death-rates at various ages are as follow :—

Age, Years	Highest	Lowest
Under 1 . . .	Bavaria	Norway
1–5	Spain	Denmark
5–15	Russia	England
15–30	Scotland	Sweden
30–60	Russia	Norway
Over 60 . . .	Spain	Norway
All ages . . .	Russia	Norway

DEATH-RATE AT CERTAIN AGES PER 1000

Age	England	Scotland	France	Belgium	Spain	Switzerland	Austria Proper	Prussia	Sweden	Italy
5	12.5	13.0	11.2	11.4	30.4	13.2	28.3	17.5	15.9	23.3
10	4.3	5.7	5.4	4.3	7.9	4.5	8.5	6.5	6.2	8.0
15	4.1	5.9	5.4	4.6	6.4	4.4	6.2	4.6	4.5	5.9
20	5.5	7.3	7.4	6.4	7.7	6.3	8.7	6.1	5.2	7.8
25	6.9	8.2	9.1	7.7	8.2	7.7	11.6	7.6	6.1	8.8
30	8.2	8.9	9.8	8.6	9.0	8.7	11.5	9.7	6.8	8.8
35	10.2	10.4	10.1	9.4	10.1	10.1	11.4	10.7	7.4	9.7
40	11.9	11.6	11.1	11.1	12.3	11.9	14.1	10.9	8.7	10.4
45	14.7	14.5	12.6	12.4	14.1	14.0	16.2	11.6	9.9	12.9
50	17.0	16.9	15.5	16.3	16.3	17.5	22.3	18.0	13.0	15.4
55	24.4	23.9	20.1	19.4	18.0	24.4	27.1	24.3	15.5	22.0
60	30.4	29.6	28.3	30.5	31.1	36.1	40.9	37.1	24.9	29.8
65	47.2	45.3	41.5	39.4	41.6	52.3	52.0	50.1	32.3	48.2
70	60.7	57.9	62.9	66.6	70.4	79.4	84.3	80.3	56.9	71.8
75	96.7	92.9	92.2	88.4	93.5	116.2	110.2	107.1	76.5	112.6
80	125.5	121.0	135.6	143.5	124.1	167.5	172.9	151.1	130.0	146.4

The percentage of death at various ages was as follows :—

Age	France	Prussia	Austria Pr.	Italy	Switzerland	Belgium	Holland	Sweden	Brussels
	1866–72	1868–73	1868–74	1872–74	1873–74	1865–74	1870–73	1865–73	...
Under 1 year .	18.5	21.1	32.4	26.4	26.3	20.2	29.1	21.3	21.3
1–5 . . .	11.0	24.5	16.1	21.3	7.7	16.7	15.7	13.6	18.1
5–10 . .	3.2	4.1	4.2	4.5	2.5	4.7	3.9	4.7	3.7
10–15 . . .	1.8	1.9	1.9	2.1	1.6	2.1	2.2	2.1	1.9
15–20 . .	2.6	2.3	2.1	2.2	2.1	2.4	2.3	2.2	2.0
20–30 . .	7.7	5.7	5.4	5.6	5.8	6.3	5.6	5.3 }	
30–40 . .	6.5	6.1	5.7	5.2	6.5	6.1	5.9	5.9 }	17.1
40–50 . .	6.9	6.8	6.3	5.5	7.3	6.3	6.0	7.2	8.9
50–60 . .	8.7	7.9	7.8	6.5	9.4	7.2	6.8	8.4	8.7
60–70 . .	12.6	9.5	8.7	8.8	13.7	10.8	8.8	10.8	8.8
70–80 . .	13.9	7.5	6.7	8.1	12.5	11.4	9.6	12.6 }	
80–90 . .	6.0	2.4	2.4	3.4	4.4	5.2	3.8	5.4 }	9.5
Over 90 . .	0.6	0.2	0.3	0.4	0.3	0.6	0.3	0.5	...
Total .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The ratio of deaths in quarters of the year was :—

	March 31st	June 30th	Sept. 30th	Dec. 31st	Year
Amsterdam	298	235	223	244	1,000
Berlin	216	252	325	207	1,000
Birmingham	306	224	235	235	1,000
Bombay	288	257	233	222	1,000
Buda-Pesth	272	278	238	212	1,000
Calcutta	254	233	207	306	1,000
Christiania	260	220	237	283	1,000
Dublin	318	224	200	258	1,000
Edinburgh	294	240	222	244	1,000
Florence	292	242	233	233	1,000
Glasgow	319	245	216	220	1,000
Hamburg	294	232	252	222	1,000
Liverpool	303	225	232	240	1,000
London	287	231	226	256	1,000
Manchester	297	237	224	242	1,000
Milan	308	295	231	166	1,000
Munich	282	261	231	225	1,000
Naples	306	245	228	221	1,000
New York	258	228	301	213	1,000
Paris	272	266	229	233	1,000
Philadelphia	262	253	270	215	1,000
Rome	286	182	246	286	1,000
Turin	322	250	205	223	1,000
Vienna	280	277	304	239	1,000

Deaths according to seasons * are as follows :—

	Spring	Summer	Autumn	Winter	Total
Algiers	142	235	353	270	1,000
Amsterdam	260	227	241	272	1,000
Austria	288	205	227	280	1,000
Bagdad	270	213	257	260	1,000
Belgium	279	218	220	283	1,000
Berlin	250	239	248	263	1,000
Biscay	223	206	238	333	1,000
Brussels	274	235	225	266	1,000
Constantinople . . .	263	238	231	268	1,000
Denmark	288	230	215	267	1,000
England	275	240	238	247	1,000
France	260	227	243	270	1,000
Geneva	265	218	240	277	1,000
Germany	277	230	237	256	1,000
Holland	220	227	315	238	1,000
Iceland	201	339	252	208	1,000
Italy	230	257	253	260	1,000
Lisbon	240	239	250	271	1,000
London	250	237	241	272	1,000
Norway	288	219	223	270	1,000
Paris	312	262	216	210	1,000
Rome	204	228	262	306	1,000
St. Petersburg . . .	294	264	216	226	1,000
Scotland	275	228	220	277	1,000
Sicily	194	312	257	237	1,000
Sweden	283	215	222	280	1,000
Switzerland	271	238	216	275	1,000

* In the following table Spring is supposed to begin March 1st, Summer June 1st, Autumn September 1st, and Winter December 1st.

The ratio according to months, taking the year as 1200, are :—

Month				London	France	Germany	Sweden	Denmark	Scotland	Belgium	Italy	Greece	Finland
January	.	.	.	103	114	104	114	113	112	119	109	105	96
February	.	.	.	99	112	100	115	106	114	122	106	102	105
March	.	.	.	124	110	113	116	119	113	121	100	91	114
April	.	.	.	91	107	109	115	114	111	112	94	90	129
May	.	.	.	84	95	110	108	113	105	101	81	85	138
June	.	.	.	99	88	94	92	96	96	93	85	97	115
July	.	.	.	89	87	94	83	91	90	84	108	107	95
August	.	.	.	95	97	89	82	88	87	85	115	105	85
September	.	.	.	113	102	94	82	83	84	89	106	104	76
October	.	.	.	84	96	92	87	86	85	86	99	106	78
November	.	.	.	92	94	98	98	89	95	89	99	103	83
December	.	.	.	127	98	103	108	102	108	99	98	105	86
Year	.	.	.	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200

Month				Amsterdam	Lisbon	Berlin	St. Petersburg	Dantzic	Paris Hospital	Geneva	Algiers	Rome	Brussels
January	.	.	.	111	113	117	90	98	82	113	118	113	107
February	.	.	.	109	101	114	97	103	90	112	78	101	113
March	.	.	.	114	99	100	104	96	125	112	77	91	114
April	.	.	.	105	100	101	122	116	135	111	50	76	108
May	.	.	.	93	90	100	127	111	114	94	43	77	106
June	.	.	.	93	91	95	115	101	118	89	61	81	99
July	.	.	.	94	99	93	102	93	107	84	101	99	96
August	.	.	.	85	97	99	99	91	90	89	121	94	87
September	.	.	.	96	100	100	91	94	102	98	126	90	85
October	.	.	.	96	101	94	82	98	81	94	151	107	90
November	.	.	.	97	99	103	86	103	76	96	146	118	95
December	.	.	.	107	110	84	85	96	80	108	128	153	100
Year	.	.	.	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200

Wappaeus gives the following table on the subject :—

Month			Sardinia	Bavaria	Saxony	Belgium	Holland	Denmark	Norway	Sweden	France
			1828–37	1844–51	1847–59	1841–50	1840–49	1845–54	1845–55	1851–55	1831–40
January	.	.	114	114	115	125	119	108	118	99	107
February	.	.	116	123	103	122	109	111	114	115	111
March	.	.	107	128	105	121	110	118	114	121	123
April	.	.	105	119	106	114	102	118	118	118	114
May	.	.	86	98	104	101	97	111	113	107	97
June	.	.	84	88	92	96	94	97	95	85	87
July	.	.	91	83	88	85	91	97	84	76	84
August	.	.	108	86	97	84	95	88	84	82	92
September	.	.	102	88	98	87	99	80	88	102	102
October	.	.	91	88	92	83	91	83	88	95	91
November	.	.	98	92	99	85	91	91	92	101	84
December	.	.	98	93	101	97	102	98	92	99	108
Year	.	.	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200

The death-rate distinguishing married and single shows thus :—

DEATHS YEARLY PER 10,000 OF EACH CLASS

Men

Age						France, 1856-65		Belgium, 1851–60		Holland, 1850–59		Average	
						Single	Married	Single	Married	Single	Married	Single	Married
15–20	.	.	.	.	.	69	513	64	119	64	121	66	251
20–30	.	.	.	.	.	117	75	88	82	106	76	104	78
31–40	.	.	.	.	.	124	71	96	80	144	102	121	84
41–50	.	.	.	.	.	180	105	144	118	220	150	181	124
51–60	.	.	.	.	.	288	186	225	197	365	258	293	214
61–70	.	.	.	.	.	515	385	430	406	605	465	517	418
71–80	.	.	.	.	.	990	902	840	870	1,110	940	980	903

Women

Age	France, 1856–65		Belgium, 1851–60		Holland, 1850–59		Average	
	Single	Married	Single	Married	Single	Married	Single	Married
15–20	75	119	84	132	67	140	75	130
20–30	86	95	83	126	78	126	82	115
31–40	104	94	91	117	115	143	103	118
41–50	145	104	122	119	160	141	142	121
51–60	240	167	212	175	280	200	244	181
61–70	490	380	440	355	525	415	485	383
71–80	1,150	905	920	750	1,030	870	1,033	842

The general rates for single and married of both sexes show thus :—

Age	Scotland		France		Belgium		Holland		Average	
	Single	Married	Single	Married	Single	Married	Single	Married	Single	Married
15–20	...	...	72	316	74	126	65	130	70	191
20–30	136	72	101	85	86	104	92	101	104	90
31–40	160	102	114	82	93	99	130	122	124	101
41–50	198	155	162	105	133	119	190	145	171	131
51–60	274	228	264	176	218	186	322	230	270	205
61–70	524	440	502	382	435	380	565	440	506	410
71–80	...	...	1,070	903	880	810	1,070	905	1,007	873

The above does not include widowed persons.

The deaths according to sex for ten years ending 1874 were :—

DEATHS OF MALES TO 100 FEMALES

England . .	107	Austria . .	107	Hungary .	108
France . .	107	Sweden . .	104	Switzerland .	108
Prussia . .	107	Holland . .	104	Italy . . .	106
Bavaria . .	107	Belgium . .	106	Average . .	106

The following table shows the percentage of deaths according to condition for ten years ending 1874 :—

	France	Prussia	Belgium	Holland	Sweden	Italy
Single	505	641	594	628	552	652
Married . . .	305	231	250	232	267	216
Widowed . .	190	128	156	140	181	132
Total . .	1,000	1,000	1,000	1,000	1,000	1,000

According to Dr. Gairdner, overcrowding increases the death-rate notably, viz. :—

Population per Square Mile	Deaths per 1000 Inhabitants Yearly
100–150	16
150–300	20
Over 300	24

The following table shows death-rate with distinction of sex and age :—

Age	Per 10,000 of each Class					
	France, 1857–65		Belgium, 1856		Sweden, 1861–70	
	Males	Females	Males	Females	Males	Females
1–5	348	344	237	250	235	225
5–10	85	89	73	72	54	49
10–20	60	69	77	92	53	46
20–30	96	91	129	110	75	62
30–40	87	98	168	154	107	90
40–50	123	115	177	195	162	122
50–60	208	186	298	225	280	214
60–70	427	410	660	575	630	530
70–80	1,000	1,000	1,210	1,170	1,310	1,150

The following table was published about 1870, showing the death-rate of clergymen in various countries :—

	Age		
	25–45	45–65	25–65
Church of England	5.4	15.8	10.1
Catholic priests, English . .	9.7	26.9	15.7
German Protestant clergy . .	5.8	20.0	11.8
Population of Germany . . .	9.7	25.9	16.8
Austrian Catholic priests . .	8.0	21.8	15.2
Austrian Greek clergy . . .	8.7	22.1	15.1
English male population . .	11.5	25.2	18.4

It is observed in most countries that the death-rate among the poor is much heavier than in the classes of easy fortune. Professor Conrad's table is as follows :—

	Ratio of Deaths		
	Affluent	Middle	Working
Still-born	28	53	53
0–1 year	118	240	206
1–5 years	95	192	220
5–15 „	48	49	58
15–20 „	35	24	21
20–30 „	86	63	64
30–60 „	247	204	222
Over 60 years	343	175	156
Total . . .	1,000	1,000	1,000

INFANT MORTALITY

The annual death-rate of infants under twelve months was in the years 1876–80 as follows :—

Per 1000 Living

England . .	145	Bavaria . .	298	Italy . . .	209
France . .	163	Wurtemburg	302	Switzerland .	189
Prussia . .	205	Austria . .	249	Sweden . .	126

M

The influence of season on the death-rate of infants is shown in the ratio of deaths thus :—

			Deaths under Two Years of Age					
	Holland	Belgium	Nice	Genoa	Naples	Palermo	Algiers	Bagdad
Spring	246	279	226	224	230	202	205	212
Summer	235	203	307	242	307	318	278	353
Autumn	254	216	222	244	209	241	285	222
Winter	265	302	245	290	254	239	232	213
Total . .	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

Deaths under Thirty Days					
	Spring	Summer	Autumn	Winter	Year
Austria . .	250	246	255	249	1,000
Belgium . .	259	193	246	302	1,000
France . .	239	225	267	269	1,000
Florence .	253	183	182	382	1,000
Geneva . .	280	177	210	333	1,000
Genoa . .	253	169	214	364	1,000
Holland . .	246	212	248	294	1,000
Hungary .	231	216	271	282	1,000
Levant . .	285	162	178	375	1,000
Milan . .	231	214	225	330	1,000
Naples . .	263	202	187	348	1,000
Sicily . . .	228	205	240	328	1,000

According to Lombard and other authorities, deaths of children under five form the following proportions in 1000 deaths of all ages :—

France	.	.	.	295	Prussia	.	.	.	456
Switzerland	.	.	.	340	Italy	.	.	.	477
Sweden	.	.	.	349	Austria	.	.	.	485
Belgium	.	.	.	369	Russia	.	.	.	554
Holland	.	.	.	448					

The following table shows how many of 1000 infants born died in each of the first five years of life :—

Period	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total	Number Surviving
England, 1866–75 . .	154	54	24	16	11	259	741
Italy, „ . .	223	91	38	26	19	397	603
Austria prop. „ . .	259	56	32	21	17	385	615
Belgium, „ . .	174	53	29	17	12	285	715
Prussia, „ . .	218	56	29	18	13	334	666
Sweden, „ . .	137	42	21	15	12	227	773
Scotland, 1876–80. .	123	55	28	19	14	239	761
Switzerland, „ . .	190	32	14	9	7	252	748
Bavaria, 1860–69 . .	324	40	19	13	10	406	594

According to the latest tables published, the number of children of 1000 born who live to complete their fifth year is as follows :—*

In			In			In		
Russia .	.	425	Prussia	.	684	England	.	762
Spain .	.	571	Switzerland	.	748	Scotland	.	780
Austria	.	614	France.	.	751	Sweden	.	783
Bavaria	.	622	Denmark	.	755	Ireland	.	837
Italy .	.	632	Belgium	.	756	Norway	.	838

The death-rate of illegimate children is 55 per cent. extra in Switzerland, and 100 per cent. in France over the normal rate. In Paris it is observed that for 100 children who die if suckled by the mother, 220 die if given out to nurse ; also that 230 spoon-fed children die for 100

* This table, except as regards Ireland and Russia, is for the years 1881–83. Brun makes the number of children in Russia who complete their fifth year 460 per thousand ; later writers only 425.

reared at the breast. The death-rate of foundlings in the first year was as follows : Marseilles, 38 ; St. Petersburg, 40 ; Lyons, 42 ; Paris, 57 per cent.

The following table from the archives of 1881 shows the deaths of infants at Rome and Berlin during the years 1877–80 :—

At	Die per 1000 Born			
	Under 30 Days		Under 12 Months	
	Lawful	Illegitimate	Lawful	Illegitimate
Rome . .	52	164	174	329
Berlin . .	57	262	133	452

The following table is from Sir Lyon Playfair and the Swedish returns, showing how many of 1000 infants born in each class will survive to complete their fifth year :—

Condition	England	Sweden	Medium
Rich . . .	820	750	785
Middle class . .	640	630	635
Poor . . .	450	560	505

Dr. Bianco gives similar tables for Turin.

According to Drysdale, the death-rate of infants in 1889 was 11 per cent. in the wealthy parishes of London, and 38 per cent. among the poor of the East End.

Deaths from Violence

The following table was published in 1840 :—

Per Million Inhabitants Yearly

Period	Country	Suicides	Acci-dents, &c.	Total Violent Deaths
1810–30	Sweden . .	51	626	677
1820–34	Prussia . .	90	396	486
1838–39	England . .	64	682	746
1839	France . .	81	187	268

In or about the year 1880 the number of violent deaths in various countries was as follows :—

	Number	Ratio per 1000 Deaths
United Kingdom . . .	23,822	33.1
France	16,373	19.7
Germany	24,592	21.4
Russia	18,500	7.4
Austria proper . . .	10,150	16.0
Italy	6,656	8.3
Spain	4,700	9.6
Switzerland . . .	2,550	38.2
Belgium	2,577	22.0
Denmark	1,054	28.1
Sweden	2,740	31.6
Norway	1,290	37.7
Europe	115,004	16.2
United States . . .	22,740	41.1

The following table of violent deaths was published in 1865 :—

	Period	No. per Million Inhabitants per Annum	Per 1000 Deaths			Females to 100 Males
			Males	Females	General	
England	1850–64	692	28	10	19	36
Belgium	1840–49	332	22	7	14	33
Norway	1851–55	679	...	...	40	...
Sweden	1856–60	420	32	9	21	27
United States	1860	575	60	30	46	50
France	1854–60	450	26	6	16	22
Bavaria	1857–61	236	12	4	8	32
Hanover	1852–57	396	27	7	17	26
Prussia	1851–60	407	22	7	15	29
Saxony	1852–58	298	13	3	8	25

The following table was published in 1875 :—

	Period	Annual Average				Per Million Inhabitants	Per 1000 Deaths
		Accidents	Murders	Suicides	Total		
England	1865–73	15,083	413	1,470	16,966	763	34.2
Italy	1865–74	6,704	2,165	801	9,670	370	12.3
Prussia	1865–73	10,430	414	3,211	14,055	601	21.4
Bavaria	1868–74	1,617	157	436	2,210	450	14.4
Austria proper . . .	1866–74	6,575	698	1,610	8,883	426	13.5
Belgium	1870–74	1,974	82	364	2,420	466	20.1
Sweden	1865–73	2,100	88	342	2,530	603	32.0

The ratio of violent deaths was stated to be :—

	England	Italy	Prussia	Bavaria	Austria	Belgium	Sweden	Seven Countries
Accidents	88.7	69.4	74.1	73.2	74.1	81.5	83.0	78.5
Murders	2.5	22.3	2.9	7.0	7.8	3.4	3.5	7.1
Suicides	8.8	8.3	23.0	19.8	18.1	15.1	13.5	14.4
Total . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

If we take the returns of the United Kingdom for 1886 and the latest information regarding other countries, estimating the United States with its actual population at the latest ascertained ratios, we can have a conspectus of all the violent deaths approximately that occur every year. Hungary and Holland are missing, and the number of murders in Russia, Denmark, and Norway is unknown. The table stands thus :—

	Number Yearly				Per Million Inhabitants	Per 10,000 Deaths	Percentage of Males in 100 Violent Deaths
	Accidents	Suicides	Murders	Total			
England	14,830	2,254	311	17,414	622	324	72
Scotland	2,164	261	19	2,444	614	328	71
Ireland	1,611	116	131	1,860	380	207	70
United Kingdom . .	18,605	2,631	461	21,713	590	310	71
France	13,205	7,070	701	20,976	540	250	75
Germany	17,800	8,480	610	26,890	570	224	76
Austria proper . . .	6,433	3,543	663	10,639	450	163	74
Italy	5,430	1,397	2,902	9,729	324	120	75
Russia	16,800	2,520	...	19,320	220	70	...
Spain	3,670	255	1,330	5,255	280	115	80
Belgium	2,039	441	86	2,566	430	214	82
Sweden	2,210	347	105	2,662	602	356	73
Denmark	640	516	...	1,156	578	290	...
Norway	1,360	146	...	1,506	753	480	...
Switzerland . . .	1,400	650	88	2,138	713	356	...
Europe	89,592	27,996	6,946	124,555	410	168	...
United States . . .	36,000	2,100	2,462	40,562	620	370	...
Total . .	125,592	30,096	9,408	165,117	450	190	...

The ratio of accidental deaths yearly per million inhabitants in or about 1880 was as follows :—

	Number per Million Inhabitants	Ratio of Sexes		Percentage of Accidental Deaths		Accidental in 10,000 Deaths
		Male	Female	Drowned	Burnt	
England .	670	74	26	22	9	303
France . .	280	78	22	41	...	130
Prussia . .	407	76	24	...	...	150
Saxony . .	298	76	24	...	...	. .
Bavaria . .	236	75	25	...	...	108
Hanover . .	396	79	21	...	...	...
Austria . .	258	73	27	...	...	98
Switzerland	605	...	...	40	4	280
Italy . .	181	75	25	...	...	85
Spain . .	202	80	20	24	3	70
Belgium .	330	82	18	27	...	163
Denmark .	232	...	...	60	2	116
Sweden . .	479	73	27	54	5	260
Norway . .	681	...	...	75	4	340
Finland . .	589	...	...	54	...	...
Russia . .	201	...	...	53	6	65
U. States .	623	67	33	16	24	340
New York .	668	...	...	...	...	270
London .	665	...	...	...	...	315
Paris . .	682	...	...	...	...	240

DEATHS FROM ALCOHOL

The following is a table of deaths from drink :—

	Per Annum	Per 1000 Deaths		Per Annum	Per 1000 Deaths
England . .	1,405	2.60	Italy . . .	709	0.85
Scotland . .	230	3.29	Switzerland .	244	3.81
Ireland . . .	280	2.78	Sweden . .	502	6.25
France . . .	448	0.54	Norway . .	72	2.36
Belgium . .	456	3.83	New York .	324	12.08

Lombard's table on deaths from drink will be found under *Diseases :—*

The returns of sickness and death from drink in armies is as follows :—

In the French army 33 men per million die yearly of drink. In the American war, 1861-63, deaths from drink were 350 per million, and 15 in 10,000 were sent to hospital for drink. In the British army the sick and deaths from this cause are :—

Station	Sick per 10,000		Deaths per 100,000
United Kingdom	. 64	...	13
Mediterranean	. 130	...	18
Halifax .	. 200	...	70
West Indies .	. 400	...	138
Trinidad .	. 530	...	290
Demerara .	. 850	...	560

DEATH-RATES OF ARMIES

Army death-rates per 10,000 men yearly, not including killed in war, are shown as follows :—

Army		Date		Per 10,000
British .	.	1879-80	...	67
French .	.	1872-74	...	87
German .	.	1878	...	58
Russian .	.	1871-74	...	147
Austrian .	.	1870-73	...	153
Italian .	.	1870-76	...	116
Belgian .	.	1870-74	...	107
Portuguese	.	1861-67	...	127

The rates for the United Kingdom in later years compare with those of 1830-40 as follows :—

	Deaths Yearly per 10,000		
	1830-1840	1879-80	1887
Cavalry . . .	153	52	43
Infantry . . .	155	65	46

The death-rate among our troops before Dr. Farr's barrack reforms was enormous, the averages for the years 1818-40 being as follows per 10,000 men :—

Great Britain . . . 159		Mauritius . . . 305
Australia . . . 141		Madras. . . . 520
Cape 155		Ceylon . . . 570
Canada. . . . 212		Bengal 630
Gibraltar . . . 221		Jamaica . . . 1430
Corfu . . . 283		Sierra Leone . 4830

The rates in the United Kingdom in 1879-80 were as follows per 10,000 :—

Station		Arm	
Ireland 65		Cavalry . . . 52
England 65		Engineers . . . 63
Scotland . . . 78		Infantry . . . 65
United Kingdom . 67		Artillery . . . 72

The improved condition of troops in England is shown by the returns for the foot-guards thus :—

	Deaths per 10,000		
	1858		1875
Fever	25	...	4
Phthisis . . .	125	...	17
Various . . .	54	...	56
Total .	204		77

On foreign service the death-rates have declined per 10,000 thus :—

	1818-36		1875
Gibraltar . . .	214	...	55
India . . .	690	...	175

The death-rates of the French army in the years 1872-77 were :—

Per 10,000 Men

Engineers. . 60	Artillery . . 106	Under 20 . . 54
Infantry . . 95	Cavalry . . 114	20-26 . . 103
Zouaves . . 106	Turcos . . 177	26-36 . . . 71

The French army, according to a report in 1867, showed the following ratios :—

Years of Service	Composition of Force	Ratio of Deaths	Annual Death-Rate per 1000 Men
Under 1 .	9.6	9.7	10.1
1-4 . . .	19.3	21.3	12.0
4-6 . . .	19.0	21.0	11.2
6-8 . . .	16.4	14.0	8.6
8-11 . . .	12.5	9.8	7.8
11-14 . .	10.5	11.0	10.4
Over 14 .	12.7	13.2	10.4
	100.0	100.0	100.0

It appears the mortality is heaviest from the first to the end of the fifth year, and lightest from the sixth to the end of the tenth year. The death-rate has declined, viz. :—

1862-69 .	. . . . .	11.5
1872-77 .	. . . . .	9.5

The ratio in Algeria is usually double what it is in France. The Prussian army in 1872 had a death-rate of 7.2 per 1000, but in 1878 the rate for the whole German

army had been brought down to 5.8. The Austrian, moreover, which averaged 15.3 in the years 1870–73, showed only 9 per thousand in 1878.

The Italian army likewise shows improvement, viz. :—

1860–70	13.8
1870–76	11.6

In Russia the army death-rate has been reduced by one-half, viz. :—

Arm	1841–52	1857–61
Infantry . . .	42.0	21.0
Cavalry . . .	23.0	14.0
Artillery . . .	27.0	15.0
General rate . .	38.0	19.0

ENGLAND AND WALES

The death-rate of England and Wales showed thus :—

Age	Death-Rate per 1000 Inhabitants per Annum			
	1841–50	1851–60	1861–70	1871–80
Under 5	66.2	68.0	68.6	63.5
5–20	7.3	7.2	6.3	5.3
20–35	9.8	9.3	9.0	8.1
35–55	15.1	14.6	15.2	15.3
55–65	30.1	29.1	30.5	32.0
65–75	64.0	62.0	63.0	65.0

Age	Males			Females		
	1841–60	1861–80	1881–85	1841–60	1861–80	1881–85
0–5	72.0	71.0	59.6	62.1	61.1	59.5
5–10	8.8	7.5	5.8	8.6	7.1	5.6
10–15	5.0	4.2	3.2	5.2	4.2	3.3
15–20	6.9	5.8	4.6	7.6	6.2	4.7
20–25	9.2	8.0	6.0	8.8	7.4	5.9
25–35	9.8	9.6	8.2	10.2	9.2	7.9
35–45	12.7	13.7	12.7	12.6	11.8	10.9
45–55	18.2	19.4	19.4	15.7	15.5	15.2
55–65	31.4	33.9	33.6	27.8	28.4	27.8
65–75	66.5	67.8	68.8	59.9	59.9	59.5
75–85	147.4	147.4	144.6	135.2	134.0	129.4

Period	Per 1000 Inhabitants per Annum		
	Male	Female	Total Pop.
1841–50 . . .	23.1	21.6	22.4
1851–60 . . .	23.1	21.4	22.3
1861–70 . . .	23.7	21.4	22.6
1871–80 . . .	22.6	20.1	21.3
1881–85 . . .	20.4	18.2	19.3

Neison gives the following death-rate per annum for 1000 persons between the ages of 25 and 65 :—

Ladies' maids . . .	8.0	Coachmen	18.4
Protestant clergy . .	10.6	Surgeons	19.1
Barristers	11.9	Apothecaries . . .	19.1
Grooms	12.6	Wine merchants . .	25.0
Physicians	12.9	Innkeepers	27.0
Valets	16.7	Cabdrivers	26.6
Attorneys	16.8	All England	18.0
Catholic priests . . .	18.3		

The total of deaths in 18 years ending 1830 was :—

Males . . .	1,996,200
Females . . .	1,942,300
Total . .	3,938,500

The annual death-rate from 1818 to 1824 was 20.3.

The ratio of all deaths in England for 18 years ending 1830 and that for 1886 were :—

Age	1813–1830			Age	1886		
	Males	Females	Total Pop.		Males	Females	Total Pop.
0–1	219	176	198	0–1	272	229	251
1–4	150	145	147	1–5	141	139	140
5–9	44	41	42	5–10	28	28	28
10–19	58	64	61	10–20	36	40	38
20–29	72	84	78	20–35	78	85	82
30–39	62	73	67	35–45	66	66	66
40–49	65	67	66	45–55	78	70	74
50–59	72	68	70	55–65	94	95	95
60–69	91	92	92	65–75	110	122	116
70–79	101	108	105	75–85	78	96	86
80	66	82	74	Over 85	19	30	24
Total	1,000	1,000	1,000	Total	1,000	1,000	1,000

In 1879 the death-rate of able-bodied males was as follows :—

	Death-rate per 1000		Death-rate per 1000
Civilians . . .	10.02	Royal navy . .	8.58
Soldiers . . .	6.66	Merchant navy .	19.10

Of 100 deaths in merchant shipping, 55 are from drowning, 35 from sickness, and 10 from various causes.

Dr. Farr shows the influence of town life on the death-rate of the working classes as follows :—

DEATHS PER 1000 YEARLY

Age	Rural	Urban
35–45	9	12
45–55	12	17
55–65	25	29
65–75	55	68
75–85	148	174
Over	324	418

The distribution of all deaths in the United Kingdom in quarters of the year is as follows :—

Quarter Ending	England	Scotland	Ireland
March 31st . . .	28.0	29.3	30.9
June 30th . . .	24.5	25.0	25.9
September 30th . .	22.4	21.8	20.0
December 31st . .	25.1	23.9	23.2
	100.0	100.0	100.0

The death-rate of London in the early part of the seventeenth century was 70 per thousand, or more than three times what it is at present ; the returns for the healthy years 1606–10 were :—

Quarter Ending	Deaths per 1000 Inhab. per Annum
31st March	56
30th June	60
30th September	84
31st December	80
Year's average	70

The following table shows the number of deaths in London from 1647 to 1829, and those that were violent :—

Period	Total Number of Deaths	Violent Deaths	Ratio per 10,000 Deaths	Number of Violent Deaths Yearly
1647–1700	1,054,000	10,700	102	200
1701–49	1,223,000	12,600	104	257
1750–99	1,044,000	13,600	130	272
1800–29	586,000	9,900	170	330

	1647-1700	1741-49	1750-99	1800-29
Suicide . .	85	162	150	186
Murder . .	65	34	21	17
Executed .	99	56	90	101
Drowned .	327	323	544	520
Burnt . .	40	31	71	96
Various . .	384	394	124	80
Total .	1,000	1,000	1,000	1,000

The following table shows the death-rate of London since 1725 :—

1725-50 . .	39.9	1800-30 .	. 33.7	1874-78 . .	22.8
1751-99 . .	38.8	1840-45 .	. 24.5	1879-81 . .	21.7

VIOLENT DEATHS IN ENGLAND (1886).

Cause	Males	Females	Total	Per 100,000 of all Deaths
Railways . . .	736	62	798	149
Mines	916	...	916	170
Fire	891	990	1,881	350
Drowned (accidentally) .	2,389	410	2,799	521
Poisoned . . .	213	116	329	61
Cabs, &c. . . .	1,259	213	1,472	273
Fall	1,867	829	2,696	502
Suffocation . .	975	779	1,754	325
Various . . .	1,566	619	2,185	407
Accidental . .	10,812	4,018	14,830	2,758
Suicide . . .	1,694	560	2,254	420
Murder . . .	181	130	311	58
Executed . . .	18	1	19	4
Total . .	12,705	4,709	17,414	3,240

The ratio of sex in violent deaths in late years averaged thus :—

	Per Cent.	
	Male	*Female*
England	72.6	27.4
Scotland	73.7	26.3
Ireland	69.7	30.3
United Kingom . .	72.5	27.5

A return of accidental deaths in England and Wales for the year 1838 showed at follows :—

Ratio in 10,000 Deaths of each Class		*Nature of Accident*	
Educated classes .	29	Fractures . . . 32.9	
Tradesmen . . .	51	Drowned . . . 20.9	
Servants . . .	95	Burnt . . . 19.2	
Labourers . . .	150	Poisoned . . . 3.6	
		Scalded . . . 4.0	
		Various . . . 19.4	
		100.0	

The ratios of violent deaths according to age and sex in England were (1871-80) :—

PER MILLION PERSONS YEARLY

Age	Males	Females	General Population
Under 5 . . .	1,300	1,080	1,200
5-15	670	260	470
16-45 . . .	960	110	540
46-65 . . .	1,340	250	800
66-75 . . .	1,560	600	1,060
Over 75 . . .	2,270	1,740	2,000

The violent deaths of the United Kingdom from 1840 to 1880 were :—

Period	Per 1000 Deaths			
	England	Scotland	Ireland	United Kingdom
1840-60 . .	34.2	32.3	...	...
1861-70 . .	34.5	31.8	24.1	32.7
1871-80 . .	34.3	35.5	21.1	32.6

SCOTLAND

The death-rate per 1000 inhabitants yearly was :—

1855-60	20.8
1861-70	22.0
1871-80	21.8

The death-rate for various professions of persons between 45 and 55 years of age is stated thus :—

Per 1000		*Per 1000*		*Per 1000*	
Farmers . .	12	Carpenters .	17	Beersellers . .	28
Shoemakers .	15	Miners . . .	20	Scotchmen . .	19
Grocers . . .	16	Butchers . .	23	Scotchwomen .	16

The rates for age, distinguishing urban from rural, show thus :—

Age	Deaths Yearly per 1000 of each Class				
	Male	Female	General	Urban	Rural
0-1 . . .	154	126	140	159	96
1-5 . . .	31.9	30.7	31.3	37.9	15.6
0-5 . . .	58.9	51.8	55.3	65.5	31.9
5-15 . .	6.2	6.2	6.2	7.2	3.9
15-30 . .	8.5	7.7	8.1	8.7	7.5
30-60 . .	17.5	14.3	15.9	18.2	10.9
Over 60 . .	208	210	209	167	256

The ratios of deaths at each age were as follows :—

Age	All Scotland				Scotch Cities, 1886	
	1876-85		1886			
	Males	Females	Males	Females	Males	Females
0-1 . .	223	176	226	176	242	193
1-2 . .	84	77	77	70	99	89
2-3 . .	37	36	33	31	42	41
3-4 . .	24	23	20	18	26	24
4-5 . .	17	17	14	14	17	15
Under 5 .	385	329	370	309	426	362
5-10 . .	45	43	41	38	44	44
10-15 . .	25	26	25	25	23	24
15-20 . .	34	33	31	33	31	31
20-30 . .	67	72	66	71	69	76
30-40 . .	59	66	60	66	70	73
40-50 . .	68	64	72	66	83	76
50-60 . .	79	76	84	81	87	90
60-70 . .	95	101	98	111	87	100
70-80 . .	91	112	96	116	60	82
Over 80 .	52	78	57	84	20	42
Total .	1,000	1,000	1,000	1,000	1,000	1,000

The death-rate in Scotch cities in 1886 was :—

PER 1000 INHABITANTS

Edinburgh .	. .	19.2	Aberdeen .	. .	19.4
Glasgow .	. .	25.1	Greenock .	. .	17.3
Dundee .	. .	18.2	Paisley .	. .	22.7

The death-rate at various dates per 1000 of population was :—

Year	Scotland		Cities		Small Towns		Rural	
	Males	Females	Males	Females	Males	Females	Males	Females
1855	21.6	20.0	29.3	25.8	21.6	19.9	...	...
1860	23.2	21.5	31.7	28.0	23.0	21.3	...	...
1871	22.9	21.5	30.4	27.9	21.4	20.6	16.7	16.0
1880	21.3	19.6	25.8	22.7	20.7	19.7	16.6	16.0
1886	19.1	18.3	21.9	20.2	18.3	17.9	15.9	14.9

The proportion of deaths in cities according to age and season were :—

Age	Spring	Summer	Autumn	Winter
0-5	42.6	42.3	43.1	41.4
5-20	10.6	11.7	10.6	9.1
20-60	29.5	28.9	29.2	30.2
Over 60	17.3	17.1	17.1	19.3
Total	100.0	100.0	100.0	100.0

The number of children of either sex who die in the first five years is as follows :—

	Of 1000 Born of each Class		
	Boys	Girls	Total
1st Year . . .	133	113	123
2nd Year . . .	56	55	55
3rd Year . . .	27	28	28
4th Year . . .	19	19	19
5th Year . . .	13	14	14
Total . .	248	229	239

Violent deaths in 1886 were as follows :—

Cause	Number			Per Million Inhab.	Per 10,000 Deaths
	Males	Females	Total		
Fire . . .	116	116	232	58	31
Drowned .	423	67	490	123	66
Suffocated .	168	140	308	77	41
Poison . .	34	20	54	14	7
Fracture . .	649	173	822	206	110
Various . .	180	78	258	65	35
Accidents .	1,570	594	2,164	543	290
Suicide . .	188	73	261	66	35
Murder . .	8	11	19	5	3
Total . .	1,766	678	2,444	614	328

IRELAND

Deaths at various ages in 1886 were as follows :—

Age	Number			Ratio		
	Males	Females	Total	Males	Females	Total
0-1	5,995	4,765	10,760	138	109	124
1-5	3,620	3,661	7,281	83	83	83
5-10	1,262	1,399	2,661	29	32	31
10-15	939	1,257	2,196	21	29	25
15-20	1,514	1,780	3,294	35	41	38
20-35	4,528	4,651	9,179	104	107	105
35-45	2,478	2,816	5,294	57	64	61
45-55	3,317	3,302	6,619	76	76	76
55-65	4,755	4,982	9,737	110	112	111
65-75	6,436	6,677	13,113	149	153	151
75-85	6,160	6,147	12,307	141	140	140
Over 85	2,489	2,362	4,851	57	54	55
Total	43,493	43,799	87,292	1,000	1,000	1,000

The death-rate is the lowest rate in Europe, viz. :—

1864-70	.	.	.	16.7 per 1000 population
1871-80	.	.	.	18.1 „ „
1877-86	.	.	.	18.4 „ „

This is the more remarkable as the cities have very high rates, viz., Dublin, 24 ; Cork, 26 ; Belfast, 28 per 1000.

In the year 1886 violent deaths formed the same ratio to population as for the ten years ending 1885, and were made up thus :—

	Number			Per Million Population	Per 10,000 Deaths
	Males	Females	Total		
Fire . .	160	184	344	70	38
Drowned .	296	62	358	73	39
Suffocated	82	39	121	25	14
Poison .	26	7	33	7	4
Fracture .	431	171	602	123	68
Various .	113	40	153	30	17
Accidents	1,108	503	1,611	328	180
Suicide .	92	24	116	25	13
Murder .	91	40	131	27	14
Executed .	2	...	2	...	...
Total	1,293	567	1,860	380	207

Under the above item of Murder are included deaths from aggravated assault, which in some countries are put down as deaths from fracture, also deaths resulting from riot. The Registrar-General classified the Dublin death-rate in 1887 thus :—

Affluent	15.9
Middle class	26.0
Poor	29.4

The general rate for the city in that year was 23.5 per 1000.

AUSTRALIA

The death-rate for thirteen years ending 1888 of the several colonies, and that of the four principal cities, for three years to 1889 was as follows :—

Per 1000 Population Yearly

N. S. Wales . 15.5	Queensland . 17.3	Sydney . . 16.9
Victoria . . 15.1	Tasmania . 15.8	Adelaide . . 16.4
S. Australia . 14.1	W. Australia 16.3	Brisbane . . 17.7
N. Zealand . 11.1	Melbourne . 21.7	All Australia 15.0

There is no part of the world with so low a death-rate as Australia, which is partly explained by the preponderance of young people. The ratio of ages in New South Wales by the Census of 1881 compares with the United Kingdom thus :—

Years				U. Kingdom		N. S. Wales
Under 20 .	.	.	.	462	...	498
20-40	.	.	.	292	...	309
Over 40 .	.	.	.	246	...	193
Total	.	1,000			...	1,000

CANADA

The returns for 1886 of deaths in the principal towns were as follow :—

Age	Montreal	Toronto	Quebec	Hamilton	Halifax	Ottawa	St. John, N.B.	Winnipeg
0–5	605	495	604	408	414	625	316	526
5–20	73	112	87	123	119	94	137	124
20–40	116	148	82	152	147	105	167	224
40–60	87	110	76	133	122	66	123	81
Over 60	119	135	151	184	198	110	257	45
Total .	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Per 1000 population . .	28.0	21.5	33.6	20.7	20.5	28.8	21.2	19.8

VARIOUS COLONIES

The rates in some of the colonies for the years 1876-80 were :—

St. Helena . 13.2	Jamaica . . 21.9	Mauritius. . 28.3
Singapore . 20.1	Bermuda . . 24.1	Trinidad . . 34.1
Ceylon . . 21.6	Hong-Kong . 25.6	Demerara . 34.5

FRANCE

The death-rate per 1000 inhabitants yearly has been :—

1800–10 . . . 27.7	1841–50 . . . 23.3
1811–20 . . . 26.0	1851–60 . . . 23.9
1821–30 . . . 25.0	1861–70 . . . 23.6
1831–40 . . . 24.8	1871–80 . . . 24.3

The rate for various ages in France and at Paris in the years 1874–78 showed thus :—

Age	Per 1000 Persons	
	France	Paris
0–5 . . .	64.6	102.0
5–10 . . .	6.6	9.5
11–20 . . .	5.0	5.7
21–30 . . .	8.9	10.0
31–40 . . .	9.9	12.6
41–50 . . .	12.0	15.8
51–60 . . .	19.5	24.6
61–70 . . .	40.3	48.7

The span of life has lengthened much in the last 100 years, the ratio of deaths in France showing thus :—

Age	1770	1857–66
Under 1 . . .	27.9	20.4
1–3 . . .	13.7	8.6
3–5 . . .	5.0	3.4
5–10 . . .	5.2	3.4
10–20 . . .	4.1	4.7
20–30 . . .	6.2	6.5
30–40 . . .	7.2	5.8
40–50 . . .	7.0	6.5
50–60 . . .	7.2	8.5
60–70 . . .	7.5	12.7
Over 70 . . .	9.0	19.5
	100.0	100.0

French death-rate in the years 1872–75 showed as follows :—

Towns 25.1
Rural 21.1
France 22.4

Infant mortality has, nevertheless, increased of late, viz. :—

Period	Deaths under Twelve Months of 1000 Born		
	Boys	Girls	Total
1840–49 . . .	172	151	160
1850–59 . . .	185	158	172
1860–69 . . .	188	161	175
1874–76 . . .	...	...	180

In the last period, of 1000 children born, 50 died in the first month, 32 in the two following, 35 between three and six months, and 63 in the second half-year, making in all 180 before reaching the age of twelve months. The following table shows the difference of infant mortality according to conditions :—

General Rate 100

Males . . . 107	Rural . . 92	Legitimate . 93
Females . . 93	Urban . . 113	Illegitimate . 185

The following table shows the death-rate of Paris for sixty years :—

Deaths Yearly per 1000 Inhabitants

1821–30 . . . . . 32.0	1861–70 . . . . . 26.7
1831–40 . . . . . 31.9	1871–74 . . . . . 21.6
1841–50 . . . . . 29.6	1875–77 . . . . . 23.7
1851–60 . . . . . 30.0	1878–80 . . . . . 24.5

Deaths according to months, taking the year as 1200, were :—

	France, 1853		Rural Population		
	Urban	Rural	Under 5 Years	5–60	Over 60
January . .	101	104	96	112	113
February . .	113	125	98	110	107
March . .	123	134	95	112	106
April . . .	113	122	96	109	109
May . . .	101	101	88	105	100
June . . .	91	91	89	96	92
July . . .	89	82	96	90	84
August . .	97	83	124	90	87
September .	97	88	140	96	96
October . .	86	84	106	97	102
November .	85	84	87	95	101
December .	104	102	85	88	103
Total .	1,200	1,200	1,200	1,200	1,200

Accidental deaths in France showed the following :—

Year	Number	Year	Number
1830 4,478	1870 10,418
1840 6,805	1880 12,787
1850 9,151	1885 13,205
1860 10,298	

The causes of violent deaths in ten years ending 1860 averaged thus.—

	Males	Females	Total
Drowned . . .	43.6	45.0	43.9
Run over . . .	11.7	6.8	10.8
Burnt	5.0	22.0	8.1
Hunger . . .	2.1	3.1	2.3
Drink	1.5	2.5	1.7
Machinery . . .	4.3	1.6	3.8
Fall	15.5	10.2	14.5
Various . . .	16.3	8.8	14.9
	100.0	100.0	100.0

Accidents in Paris in the years 1861–67 showed the following yearly average :—

PER MILLION PERSONS OF EACH CLASS

	Killed			Injured		
	Men	Women	Children	Men	Women	Children
Run over	118	16	32	1,180	317	237
Other accidents }	554	82	209	1,356	167	265
Total .	672	98	241	2,536	484	502

The general ratio for the whole population, per million inhabitants, was as follows :—

	Killed	Injured
Run over	62	648
Other accidents . .	300	666
Total per million	362	1,314

Accidents in French mines showed thus :—

Period	Number of Miners	Killed Yearly	Killed per 10,000
1851–54 . . .	72,000	115	16
1855–59 . . .	108,000	196	18
1860–63 . . .	117,000	228	20

Deaths at various ages according to season showed :—

	2–5	5–10	10–20	20–30	30–50	50–70
Spring . . .	29.0	32.5	29.7	28.9	29.3	29.4
Summer . . .	23.6	23.6	24.2	23.0	22.4	20.5
Autumn . . .	22.3	18.6	20.9	21.8	21.4	21.3
Winter . . .	25.1	25.3	25.2	26.3	26.9	28.8
Total .	100.0	100.0	100.0	100.0	100.0	100.0

The returns for the Institute of France during 75 years ending 1870 showed the following comparison of death-rate with the general population of France :—

Age	Death-Rate		Life-Expectation, Years	
	Institute	General Population	Institute	General Population
35–40	12	13	32	29
40–50	14	15	26	24
50–60	21	22	18	17
60–70	44	47	12	11
70–80	82	90	7	6½

Deaths from lightning in France in ten years ending 1863 averaged 64 men and 24 women yearly. The total

number of persons killed on railways in sixteen years was as follows :—

	No.	Per Annum
Travellers . . .	324	20
Servants . . .	2,154	135
Others	992	62
Total .	3,470	217

Deaths from drowning were in 1881 as follows :—

	Men	Women	Total
Accidental . . .	3,263	679	3,942
Suicidal . . .	1,295	639	1,934
Total .	4,558	1,318	5,876

The distribution of deaths according to the hours of day or night is shown for France, compared with Quetetet's observations for Belgium, thus :—

	France		Quetetet, Belgium
	Towns	Rural	
Midnight to 6 A.M. . .	21.9	24.4	27.4
6 A.M. to noon . . .	26.3	27.5	26.4
Noon to 6 P.M. . . .	30.8	26.3	24.0
6 P.M. to midnight . .	21.0	21.8	22.2

GERMANY

The death-rate of all Germany during eleven years ending 1881 for 1000 persons of each age was as follows :—

Age	Males	Females	Age	Males	Females
1 . . .	64.9	63.6	25 . . .	8.5	8.2
2 . . .	33.2	32.6	30 . . .	9.3	9.7
3 . . .	23.1	22.5	40 . . .	13.6	12.2
4 . . .	17.1	16.9	50 . . .	21.5	16.0
5 . . .	13.0	12.9	60 . . .	38.2	32.9
10 . . .	4.7	4.8	70 . . .	81.1	74.7
15 . . .	3.9	4.2	80 . . .	174.5	168.3
20 . . .	7.5	6.1			

The death-rate of Prussia in the years 1868–72 was :—

Age	Deaths per 1000		Expectations of Life, Years	
	Males	Females	Males	Females
4–5 . . .	19.0	19.3	51.9	53.7
5–10 . . .	10.1	10.2	51.5	53.3
10–15 . . .	4.8	5.2	48.1	49.8
15–20 . . .	6.2	6.0	44.1	45.5
20–30 . . .	9.5	8.8	38.0	39.5
30–40 . . .	11.2	11.6	30.3	31.3
40–50 . . .	18.0	15.0	23.0	23.7
50–60 . . .	27.0	25.0	16.2	16.2
60–70 . . .	49.0	50.0	10.0	9.9
70–80 . . .	90.0	94.0	5.7	5.4

The average age of all who died in ten years ending 1876 was :—

Males	. . . . . .	25.8
Females	. . . . .	27.6

The death-rate among Jews was much lower than among Christians, as shown thus :—

Period	Deaths Yearly per 1000			
	Christians		Jews	
	Males	Females	Males	Females
1822–40 . .	28.7	27.0	22.1	19.1
1841–66 . .	30.2	28.2	19.8	17.9

The mean death-rate of five principal cities during sixty years down to 1875 was as follows :—

1816–40 . . . . 33.9	1867–71 . . . . 37.4
1841–66 . . . . 35.4	1872–75 . . . . 40.6

The mean rate during sixty years was as follows :—

	Males		Females
Berlin . . .	. 36.7	...	28.5
Breslau . . .	. 36.8	...	33.0
Cologne . . .	. 30.6	...	28.8
Königsberg . .	. 38.2	...	31.9

The mean rate for all Prussia in sixty years was per 1000 inhabitants :—

Males 30.2	Urban population . 30.1
Females 27.7	Rural ,, . 28.4

The general rate for all Prussia during sixty years averaged 29.0 per thousand.

The deaths of infants at Berlin show that of 1000 born 237 die in the first year, 80 the second, 36 the third, and 9 the fourth, leaving only 638 surviving to begin their fifth year. Of 100 accidental deaths in Prussia in ten years down to 1874, 78 were of males, 22 of females.

Hanoverian statistics show the death-rate of unhealthy trades as follows :—

Per 1000 Yearly

Painters 15.6	Glass-blowers . . 20.8
Varnishers . . . 18.8	Dyers 25.1

In Saxony the death-rates in 1845–47 were :—

Age	Per 1 00 Yearly		
	Males	Females	General
1–14	17.5	15.8	16.6
14–30	6.6	6.6	6.6
30–60	16.2	16.3	16.2
Over 60 . . .	94.4	94.6	94.5

Distinguishing town-rates from rural, the rates in the year 1863 were :—

Age	Cities			Rural		
	Males	Females	General	Males	Females	General
Under 6	116.0	100.0	108.0	101.0	83.0	92.0
6–14	4.6	4.8	4.7	4.4	4.3	4.4
14–20	4.8	5.5	5.1	4.3	4.1	4.2
20–30	8.7	8.5	8.6	6.4	6.9	6.7
30–40	11.4	12.9	12.1	8.1	10.3	9.2
40–50	19.0	14.4	16.6	14.2	13.4	13.8
50–60	32.0	25.9	28.8	26.9	24.6	25.7
60–70	62.5	56.9	59.5	58.8	57.9	58.3
70–80	142.0	150.0	146.0	118.0	134.0	126.0

Distinguishing married from single at Leipzig, in ten years ending 1875 the rates were :—

Age	Males		Females		General
	Married	Single	Married	Single	
15–20	...	3.6	11.0	3.0	3.4
20–30	9.0	8.2	8.2	6.5	7.5
30–40	12.5	18.5	11.6	8.8	12.5
40–50	21.8	31.0	12.2	13.2	18.8
50–60	31.0	31.4	17.4	22.2	26.6
60–70	55.0	56.0	35.0	55.0	49.0
Over 70	117.0	111.0	85.0	111.0	123.0

The effect of over-crowding on death-rate is shown thus :—

Living in	Berlin, 1871	Leipzig, 1875
One room . . .	48.7	21.4
Two rooms . .	24.9	25.9
Three rooms . .	11.2	20.2
Over three rooms .	15.2	32.5
	100.0	100.0

It would appear from the foregoing that there is much over-crowding at Berlin and little at Leipzig, nearly half the deaths in the former city occurring in families living in one room, and at Leipzig less than one-fourth. The mortality of infants, however, is much higher at Leipzig in the crowded population than among the other quarters of the city, viz. :—

Inhabitants per Room	Death-Rate Yearly per 1000 Infants	
	Under Twelve Months	Twelve Months to Five Years
Over 3 . . .	419	49
2–3 . . .	338	45
1 . . .	255	37
Less than 1 . .	111	14

The death-rate in Leipzig for all persons over five years was 9.9 per 1000 where the population was less than one per room, and 18.4 in the rest. Infant mortality at Leipzig in ten years ending 1875 showed thus :—

Of 1000 born, die under twelve months

Males	233
Females	205
General rate	219

The death-rate of infants is increasing, the rates for all Saxony of 1000 born who die under twelve months showing thus :—

Period	Boys	Girls	General Rate
1845–55 . . .	277	235	257
1856–65 . . .	283	241	263
1866–75 . . .	293	252	272

Mortality is much higher with illegitimate than with lawful children, averages for six years ending 1870 being thus :—

Deaths per 1000 Born

	Saxony	Dresden
Legitimate . . .	256	250
Illegitimate . . .	353	705

The general death-rate of Saxony was 30.1 in ten years ending 1849, and 30.3 in ten years ending 1876.

At Munich the death-rate of infants shows that of 1000 born, the Jews lose 170 in the first year, Protestants 320, and Roman Catholics 400, the last including all the working-classes, who suffer from overcrowding.

SWITZERLAND

The death-rate per 1000 inhabitants yearly for all Switzerland for ten years ending 1880 was 24.0. Rates, however, vary much with the cantons. For example, infant mortality at Berne is 101 per thousand, and at St. Gall 301. The statistics of Geneva for 25 years ending 1871 showed the annual average death-rate thus :—

Swiss	21.7
Foreign residents	15.4

At Geneva there were 101 deaths to 100 births among natives, whereas among foreign residents there were 156 births to 100 deaths. Ladame gives the rates of infant mortality, distinguishing legitimate from illegitimate, thus :—

Of 1000 Born

	Die in 30 Days	Die in 12 Months
Legitimate . .	77	...	180
Illegitimate . .	136	...	280

Climatic changes have occurred at Geneva since the seventeenth century, August and September having much lower ratios of deaths than in 1633–1700, viz. : —

OF 1200 DEATHS YEARLY

	1633–1700	1838–55		1633–1700	1838–55
January . .	114	114	July . . .	84	86
February . .	106	117	August . .	108	83
March . .	105	120	September .	105	90
April . . .	100	111	October . .	89	95
May . . .	100	95	November .	95	96
June . . .	86	92	December .	108	101

Accidental deaths in the years 1876–81 averaged 1697 per annum, equal to 605 per million inhabitants, or 280 in 10,000 deaths.

SWEDEN

Death-rates for age from 1751 to 1875 showed thus :—

Age	1751–90	1791–1830	1831–60	1861–70	1871–75
0–10 . .	55.4	45.4	36.5	35.1	30.0
10–20 . .	7.3	5.8	5.1	4.5	4.0
21–30 . .	9.5	8.5	7.3	6.4	7.0
31–40 . .	12.4	11.6	10.5	8.3	8.7
41–50 . .	17.2	16.6	15.1	12.0	11.4
51–60 . .	24.9	26.6	24.5	20.3	18.1
Over 60 .	76.5	81.0	74.0	68.8	64.0

The rates for the years 1871–75 were thus :—

	0–20	20–30	31–40	41–50	Over 50
Males . .	19.1	7.8	9.3	13.0	42.2
Females . .	16.8	6.3	8.1	10.0	38.9

Distinguishing the sexes, and also urban from rural, the rates for ten years ending 1870 were :—

Age		Males		Females	
	Town	Rural	Town	Rural
Under 1 . .	256.0	159.0	222.0	133.0
1–5 . . .	54.0	31.0	53.0	29.0
5–10 . . .	12.9	9.2	12.9	8.6
10–20 . . .	5.9	4.4	4.8	4.2
20–30 . . .	10.5	6.6	8.1	5.4
30–40 . . .	16.7	7.7	10.2	7.4
40–50 . . .	25.4	12.5	13.8	10.5
50–60 . . .	40.0	22.0	20.0	17.0
60–70 . . .	66.0	46.0	36.0	39.0
70–80 . . .	130.0	112.0	96.0	94.0
General rate	29.7	20.5	25.5	18.9

The average age at death was in years as follows :—

	Males			Females		
	1861–65	1866–70	1871–75	1861–65	1866–70	1871–75
Town	23.3	24.3	25.8	28.4	29.9	31.3
Rural	30.0	33.5	34.2	34.5	37.4	38.4
Gen.	29.0	32.0	32.6	33.6	36.2	37.3

RATIO OF DEATHS

	Males		Females	
	1861–70	1871–75	1861–70	1871–75
Unmarried .	59.7	57.5	54.3	51.3
Married . .	28.4	29.8	22.6	24.6
Widowed .	11.9	12.7	23.1	24.1
Total	100.0	100.0	100.0	100.0

The number of females dying to 100 males was :—

	1861–70	1871–75
Town . . .	95.4	92.2
Rural . . .	96.4	97.3
Sweden . . .	96.2	96.3

Ratios of deaths according to months showed thus :—

	1749–60	1851–55	1861–72		
	Sweden	Sweden	Urban	Rural	General
January . .	102	100	107	115	114
February .	104	116	108	117	116
March . .	113	121	107	119	117
April . . .	124	118	109	117	116
May . . .	120	107	103	108	108
June . . .	105	84	95	92	92
July . . .	94	76	96	81	83
August . .	90	82	95	79	81
September .	86	102	95	79	81
October . .	84	95	91	86	87
November .	87	100	92	99	98
December .	91	99	102	108	107
Total	1,200	1,200	1,200	1,200	1,200

Violent deaths were as follows :—

	Annual Average.		Total Number in 15 years	Ratio
	1861–70	1871–75		1861–75
Drowned . .	1,132	1,202	17,268	45.7
Burnt . . .	152	150	2,267	6.0
Suffocated . .	146	102	1,974	5.2
Murdered . .	78	105	1,299	3.4
Crushed . .	461	573	7,482	19.7
Poisoned accidentally .	20	21	310	0.8
Shot accidentally .	29	38	489	1.3
Lightning . .	11	14	183	0.5
Frozen . . .	54	64	862	2.3
Various . . .	43	46	681	1.8
Suicide . . .	328	347	5,068	13.3
Total .	2,454	2,662	37,883	100.0

Accidental deaths (including also murders) in the above fifteen years, distinguishing urban from rural districts, were per million inhabitants yearly as follows :—

	Town	Rural		Town	Rural
Drowned . .	436	255	Crushed . .	174	112
Burnt . . .	31	37	Choked . .	6	2
Lightning . .	...	3	Shot . . .	8	8
Murdered . .	3	2	Poisoned . .	10	4

NORWAY

Death-rate per 1000 inhabitants yearly from 1801 to 1875 was as follows :—

1801–15 . . 25.0 | 1836–45 . . 18.9 | 1856–65 . . 17.7
1816–35 . . 19.2 | 1846–55 . . 18.1 | 1866–75 . . 17.5

Rates distinguishing age and sex showed as follows :—

Age	Males			Females		
	1816–40	1841–60	1861–65	1816–40	1841–60	1861–65
Under 10	32.2	27.4	31.2	28.0	24.2	28.8
10–20	4.7	4.7	5.5	4.2	4.2	5.1
21–30	8.2	8.2	8.4	6.5	6.0	6.3
31–40	9.5	9.0	8.0	9.0	8.6	8.3
41–50	13.2	12.8	11.1	11.6	10.8	9.9
51–60	21.7	20.0	17.0	17.3	15.8	14.0
61–70	40.0	38.0	35.0	35.0	33.0	30.0
71–80	81.0	84.0	81.0	77.0	77.5	72.0

Infant mortality has been as follows :—

Period	Deaths under 12 Months of 1000 Born	
	Males	Females
1836–55	130	109
1856–65	112	96
1866–73	115	98

FINLAND

Death-rate per 1000 inhabitants yearly was as follows:—

1751–70 . . 29.6	1811–20 . . 26.1	1841–50 . . 23.6
1771–1800 . 26.4	1821–30 . . 24.7	1851–60 . . 28.6
1801–10 . . 32.3	1831–40 . . 28.2	1861–65 . . 26.2

In 1865 the span of life, in years, was as follows :—

Males 35.6
Females 38.4

The general span for the whole population was thirty-seven years.
Death-rate for age was as follows :—

Age	Age	Age
Under 1 . . 139.0	10–20 . . . 4.0	40–50 . . . 11.5
1–5 . . . 25.0	20–30 . . . 6.5	50–60 . . . 19.0
5–10 . . . 8.0	30–40 . . . 7.5	60–70 . . . 44.0

RUSSIA

In 1867 the following table of death-rate was published :—

Per 1000 Yearly

Age	Age
5–15 . . . 7.3	30–60 . . . 21.5
15–30 . . . 8.0	Over 60 . . 121.0

Of 1000 boys born, 254 die, and of girls 231, in their first year. At Nijni Novgorod infant mortality is 360, and in the government of Perm 446 per thousand births.

HOLLAND

Death-rate per 1000 inhabitants yearly was :—

1861–70 . . . . 24.9
1871–80 . . . . 24.3

The influence of season on death-rate at various ages is seen as follows :—

Age	Spring	Summer	Autumn	Winter	Year
Under 3 months	246	212	248	294	1,000
3–24 ,,	247	259	259	235	1,000
2–5 years . .	273	229	235	263	1,000
5–10 ,, . .	269	259	231	241	1,000
11–20 ,, . . .	265	261	229	245	1,000
21–30 ,, . . .	261	253	232	254	1,000
31–50 ,, . . .	260	246	226	268	1,000
51–70 ,, . . .	253	223	228	296	1,000

GREECE

In ten years ending 1878 the death-rate for age was as follows :—

Age	Males	Females	General Population
Under 5 . . .	50.3	49.0	49.7
5–10	11.2	10.8	11.1
10–20	7.4	7.2	7.3
20–30	9.8	8.5	9.1
30–40	11.3	10.7	11.0
40–50	15.5	14.9	15.2
50–60	28.5	24.4	26.5
60–70	49.0	46.0	47.7
70–80	91.0	105.0	98.0

BELGIUM

The annual average of deaths since 1830 was :—

Year	Number	Per 1000 Population	Year	Number	Per 1000 Population
1831–40	108,000	26.7	1861–70	115,000	23.3
1841–50	104,000	24.2	1871–80	120,000	22.5
1851–60	102,000	22.2	1881–87	118,000	20.7

The percentage of deaths according to age was as follows :—

	1841–50	1851–60	1861–66	1878–82	1887
Under 5	34.1	35.9	37.4	36.4	33.9
5–10	4.9	4.1	4.7	2.9	2.7
10–20	6.1	5.7	4.7	4.0	3.9
20–30	7.1	6.6	6.4	5.4	5.6
30–40	6.3	6.1	6.2	5.6	5.3
40–50	7.2	6.4	6.4	6.0	6.3
50–60	7.6	8.3	7.7	7.9	7.9
60–70	10.1	10.1	10.9	11.1	11.9
70–80	10.7	11.1	10.2	13.6	14.1
Over 80	5.9	5.7	5.4	7.1	8.4
Total	100.0	100.0	100.0	100.0	100.0

Sanitary improvements have done much for public health. For instance, the percentage of deaths between 5 and 20 years of age is now little more than half what it was in the decade of 1841–50; that of deaths over 70 years is one-third higher.

The mean averages for 35 years, 1846–80, showed as follows :—

	Unmarried		Married		Total Population	
	Males	Females	Males	Females	Males	Females
0–15	73.8	71.3	...	...	43.4	40.8
15–20	4.1	5.2	...	0.2	2.4	3.1
20–30	6.3	7.4	3.6	9.4	6.6	6.5
30–40	4.2	3.1	11.4	19.1	5.6	6.5
40–50	3.0	2.3	17.6	19.3	6.9	6.4
50–60	2.7	2.6	21.4	17.9	8.5	7.3
60–70	2.7	3.2	23.6	18.8	10.7	10.5
70–80	2.3	3.3	17.6	12.5	10.8	12.1
Over 80	0.9	1.6	4.8	2.8	5.1	6.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Death-rate for age is stated as follows :—

Age	Per 1000	Age	Per 1000	Age	Per 1000
0–1 . . . 186.0		10–20 . . . 6.2		40–60 . . . 20.6	
1–10 . . . 20.1		20–40 . . . 13.4		Over 60 . . 79.1	

Violent deaths were as follows :—

By	Annual Average, 1871–80			1881–85
	Males	Females	Total	
Firearms .	21	3	24	23
Fire . . .	135	101	236	226
Fall . . .	291	42	333	320
Railway . .	161	18	179	175
Machinery .	107	11	118	103
Drowning .	503	100	603	607
Vehicles . .	131	19	150	147
Various . .	328	68	396	384
All accidents	1,677	362	2,039	1,985
Murder . .	67	19	86	98
Suicide . .	373	68	441	602
Total .	2,117	449	2,566	2,685

Other tables will be found at page **179**. The influence of season on death-rate is shown by the following ratios :—

				Death Ratios		
				Under 3 Months	3 to 24 Months	General Population
Spring .	.	.	.	264	293	279
Summer	.	.	.	200	206	218
Autumn	.	.	.	225	207	220
Winter .	.	.	.	311	294	283
				1,000	1,000	1,000

ITALY

The death-rate per 1000 inhabitants yearly has been :—

1861–70 .	.	.	.	30.1
1871–80 .	.	.	.	29.7

Deaths in Italian cities according to season showed thus :—

GENOA

	Under 5	5–10	10–30	30–50	50–70
Spring . .	21.3	21.7	22.5	20.4	22.1
Summer .	26.0	25.7	27.0	26.8	23.9
Autumn . .	26.3	29.4	29.3	30.0	28.1
Winter . .	26.4	23.2	21.2	22.8	25.9
	100.0	100.0	100.0	100.0	100.1

NAPLES

	Under 5	5–10	10–30	30–50	50–70
Spring . .	23.8	28.6	24.2	24.6	25.3
Summer . .	29.5	26.1	25.3	25.6	20.8
Autumn . .	21.0	18.4	25.0	23.0	22.3
Winter . .	25.7	26.9	25.5	26.8	31.6
	100.0	100.0	100.0	100.0	100.0

SPAIN AND PORTUGAL

The ratios of ages in deaths for Spain and Lisbon were :—

Age					Spain	Lisbon
0–20 .	.	.	.	.	59.9	50.1
20–40	.	.	.	.	10.3	10.5
40–60	.	.	.	.	12.0	13.0
Over 60	.	.	.	.	17.8	26.4
Total	.	.			100.0	100.0

AUSTRIA-HUNGARY

The death-rates have been as follows :—

					1861–70	1871–80
Austria .	.	.	.	.	30.4	31.2
Hungary .	.	.	.	.	38.7	40.1

Death-rates for age were as follows :—

Age	Austria, 1860–68	Hungary, 1869–73	Age	Austria, 1860–68	Hungary, 1869–73
Under 1	303.0	...	15–30	8.1	9.3
1–5	40.6	34.3	30–60	17.1	20.0
5–15	7.3	10.2	Over 60	84.0	...

Deaths at Vienna, according to season, showed thus :—

	Under 5	5–15	15–40	40–60	Over 60
Spring	29.7	28.8	32.4	30.9	30.3
Summer	23.5	21.9	22.6	21.1	20.6
Autumn	21.9	22.7	19.0	22.0	21.2
Winter	24.9	26.6	26.0	26.0	27.9
	100.0	100.0	100.0	100.0	100.0

Statistics of Prague show the death-rate thus :—

Age	Per 1000	Age	Per 1000
Under 1 . . .	497	20–40	14
1–5	85	40–60	25
5–20	10	Over 60 . . .	71

The general rate for the population was 35 per 1000. Violent deaths in 1885 in Austria proper were as follows :—

	Number			In 100,000 Deaths		
	Males	Females	Total	Males	Females	Total
Accidents .	4,603	1,830	6,433	138	57	96
Murders .	493	170	663	15	5	10
Suicides .	3,013	824	3,837	90	25	57
Total .	8,109	2,824	10,933	243	87	163

In five years ending 1886 the average per 100,000 deaths showed there were 10 murders, 55 suicides, and 90 deaths by accident.

ALGERIA

There has been a notable decline of death-rate, as the following table shows :—

Nationality					Deaths per 1000 Persons Yearly	
					1853–56	1873–76
French .	.	.	.	.	46.3	26.8
Spaniards .	.	.	.	.	30.0	27.9
Italians .	.	.	.	.	30.0	28.9
Maltese .	.	.	.	.	28.2	26.7
Germans .	.	.	.	.	54.8	36.9
Jews .	.	.	.	.	27.9	24.4

Deaths in Algeria according to season were :—

Spring .	.	.	.	.	.	19.5
Summer	.	.	.	.	.	29.3
Autumn	.	.	.	.	.	28.5
Winter	.	.	.	.	.	22.7
						100.0

Algerian statistics show that of 1000 infants born the following numbers die in the first twelve months :—

Parents	Death per 1000		
	Boys	Girls	General
French	244	146	207
Spanish . . .	238	250	257
Italian	245	184	224
Jewish	236	182	213
Mahometan . . .	530	488	500
German	...	...	344

Deaths according to months in Algeria, taking the year as 1200, were :—

January . . .	96	July	127
February . . .	86	August . . .	138
March . . .	91	September . .	102
First quarter	**273**	**Third quarter**	**367**
April	71	October . . .	127
May	72	November . .	113
June	86	December . .	91
Second quarter	**229**	**Fourth quarter**	**331**

JAPAN

The returns for 1878–80 showed as follows :—

	Death-Rate per 1000	Ratio of Deaths
Under 10 . . .	25.8	28.0
10–20 . . .	5.4	4.9
20–30 . . .	8.6	7.7
30–40 . . .	9.2	8.6
40–50 . . .	8.9	8.7
50–60 . . .	11.5	11.4
60–70 . . .	13.9	13.8
70–80 . . .	12.1	11.6
Over 80 . . .	4.8	5.3
General rate . .	17.0	100.0

In 1000 deaths 527 were of males, 473 females.

BRAZIL

Death-rate at Rio Janeiro in 1867–69 averaged 24.4 per 1000, the ratio showing thus :—

Under 1 . . .	14.8	Quarter ending—	
1–7 . . .	11.6	March 31st . .	284
7–25 . . .	18.4	June 30th . .	261
25–40 . . .	22.9	September 30th .	228
Over 40 . . .	32.3	December 31st .	227
	100.0	Year .	1,000

In 1000 deaths, 546 were of males, 454 females ; 627 natives, and 373 foreigners.

UNITED STATES

The only death-rates published are these :—

Age	Annual Deaths per 1000 Inhabitants		
	Massachusetts	Maryland	United States
Under 5 .	65.8	51.7	58.8
5–10 . .	10.7	9.5	10.1
10–15 . .	5.1	5.4	5.3
15–25 . .	5.8	5.4	5.6
25–45 . .	11.9	10.1	10.8
45–55 . .	16.4	18.2	17.6
55–65 . .	26.3	28.1	27.2
65–75 . .	46.9	56.5	51.4

DEPOPULATION

The only European country which has suffered depopulation in the present century is Ireland. It is the result partly of famine, partly of evictions by the landowners. The official returns show the number of persons evicted thus :—

1849–51	263,000
1852–70	157,000
1871–87	113,000
Total . . .	533,000

This is, however, far short of the reality. The Census of 1861 showed the number of one-room cabins to be 89,400 against 491,300 in the Census of 1841, from which it appears that 402,000 cabins had been pulled down, the abodes of 2,000,000 inhabitants. The official number of emigrants from 1837 to 1888 was 4,338,000, but this did not include 600,000 who went to England or Scotland. The population has fallen from 8,275,000 in 1845 to 4,716,000 in 1889, a decline of 43 per cent. At present it is but 150 per square mile, against 190 in France, 240 in Germany, and 270 in Italy. The marriage-rate and birth-rate are the lowest in the world. The ratio of able-bodied population, male and female, between the ages of 20 and 55 is much less than in the sister kingdoms, as shown by the Census of 1881, viz. :—

England .	.	.	.	.	432 per 1000
Scotland .	.	.	.	.	424	,,
Ireland .	.	.	.	.	408	,,

The drain upon persons of the able-bodied age has been attended by a remarkable increase of pauperism, as the official returns show :—

Year				No. of Paupers	Per 1000 Inhab.
1874 .	.	.	.	79,600	15
1880 .	.	.	.	100,900	19
1888 .	.	.	.	113,900	24

In the above interval of 14 years the population declined by 584,000 souls, and yet the number of paupers increased in the ratio of 43 per cent.

DIET

The principal components of animal food are as follows :—

	Fat	Nitrogen	Water		Fat	Nitrogen	Water
Lobster	1.2	19.2	76.6	Tripe	16.4	13.2	68.0
Oyster	1.5	14.0	80.4	Beef	17.1	17.2	61.5
Turbot	2.9	18.1	78.0	Mutton	18.1	15.3	62.5
Rabbit	3.2	13.9	73.2	Cheese	41.3	7.0	38.8
Salmon	5.5	16.1	77.0	Pork	44.9	9.8	43.0
Milk	7.9	4.5	87.0	Bacon	63.3	8.8	25.0
Eggs	10.5	14.0	74.0	Butter	81.0	5.0	11.0

The components of vegetable food are :—

	Starch	Nitrogen	Water		Starch	Nitrogen	Water
Mushroom . . .	3.5	4.7	91.0	Bread	49.0	10.0	33.6
Cabbage	4.0	1.8	92.0	Beans	52.6	22.0	12.8
Turnip	5.1	1.2	91.0	Peas	52.6	22.3	14.5
Carrot	5.5	0.7	87.3	Tea	55.2	28.8	12.0
Beer	9.2	0.9	89.7	Lentils	56.0	25.2	11.5
Parsnip	9.6	1.1	82.0	Coffee	59.4	26.2	12.0
Beet-root. . . .	11.3	5.0	82.7	Wheat-flour . . .	59.7	12.6	14.5
Asparagus . . .	11.8	1.2	86.0	Oatmeal. . . .	63.8	12.6	15.0
Artichoke . . .	14.7	3.1	76.0	Cocoa	71.0	24.0	4.0
Yam	16.0	2.0	74.0	Maize	71.2	9.9	13.5
Truffles	16.6	8.8	72.0	Rye	73.2	8.0	15.0
Sugar-cane . . .	18.0	5.5	72.0	Barley	74.3	6.3	15.0
Banana	19.7	4.8	73.9	Rice	79.5	6.3	13.0
Potato	20.2	2.3	75.9	Buckwheat . . .	79.9	2.6	12.8

The percentage of carbon in food is as follows :—

Cabbage	. . 3	Eggs.	. . . 16	Biscuit	. . . 42
Beer .	. . . 4	Beef .	. . . 27	Oatmeal.	. . 42
Carrots	. . . 5	Bread	. . . 27	Sugar	. . 42
Milk .	. . . 7	Cheese	. . . 36	Flour .	. . . 46
Parsnips	. . 8	Peas .	. . . 36	Bacon	. . . 54
Fish .	. . . 9	Rice .	. . . 38	Cocoa	. . 69
Potatoes.	. . 12	Maize	. . . 38	Butter .	. . 79

The nutritive value of food (taking beef as 100) is expressed thus :—

Oysters	. . . 22	Turbot.	. . 84	Beef.	. . . 100
Milk .	. . . 24	Mutton.	. . 87	Duck	. . . 104
Lobsters	. . 50	Venison	. . 89	Salmon.	. . 108
Cream .	. . 56	Veal .	. . 92	Pork .	. . 116
Cod-fish.	. . 68	Fowl .	. . 94	Butter .	. . 124
Eggs .	. . . 72	Herring	. . 100	Cheese .	. . 155

The following table shows foot-tons of energy contained per ounce of food :—

	Foot-Tons		Foot-Tons		Foot-Tons
Cabbage . . 16		Porter . . . 42		Rice . . . 145
Carrots . . 20		Beef . . 55		Flour . . . 148
Milk . . . 24		Egg . . 57		Arrowroot . 151
Apples. . . 25		Ham . . 65		Oatmeal . . 152
Fish . . . 30		Bread . . 83		Cheese . . 168
Ale 30		Salt . . 120		Butter . . 281
Potatoes . . 38		Sugar . . 130		

The loss of weight in meat in cooking is as follows :—

100 lbs. raw beef	= 67 lbs. roast
,, ,, beef	= 74 ,, boiled
,, ,, mutton	= 75 ,, roast
,, ,, fowl	= 80 ,, roast
,, ,, fowl	= 87 ,, boiled
,, ,, fish	= 94 ,, boiled

Payn's table gives the following percentages in food :—

	Azote	Carbon	Fat	Water		Azote	Carbon	Fat	Water
Batata . . .	0.2	9.0	0.3	80.0	Kidneys . . .	2.7	12.2	2.1	78.2
Beans . . .	3.9	43.0	2.8	10.0	Lard	1.2	71.0	71.0	20.0
Beef, raw . . .	3.0	11.0	2.3	78.0	Lentils . . .	3.9	43.0	2.6	11.5
Beef, roast. . .	3.5	11.8	5.2	70.0	Lobsters . . .	2.9	11.0	1.2	76.6
Beer	0.1	4.5	...	90.0	Mackerel . . .	3.7	19.3	6.8	68.3
Bread . . .	1.1	29.5	1.2	35.0	Maize . . .	1.7	44.0	8.8	12.0
Butter . . .	0.6	83.0	82.0	14.0	Milk, cow's . . .	0.7	8.0	3.7	86.5
Carrots . . .	0.3	5.5	0.2	88.0	Milk, goat's . . .	0.7	8.6	4.1	83.6
Cheese, Brie . .	2.9	35.0	25.8	45.3	Mushrooms . . .	0.7	4 5	0.4	91.0
Chestnuts . . .	0.6	35.0	4.1	26.0	Oil, olive . . .	...	98.0	96.0	2.0
Chestnuts, dry .	1.0	48.0	6.0	10.0	Oyster . . .	2.1	7.2	1.5	80.4
Cod, salt . . .	5.0	16.0	0.4	47.0	Potato . . .	0.3	11.0	0.1	74.0
Eel	4.0	12.7	5.0	80.0	Rice	1.8	41.0	0.8	13.0
Figs	0.4	15.5	0.3	66.0	Rye-flour . . .	1.8	41.0	2.2	15.0
Figs, dry . . .	0.9	34.0	0.3	25.0	Salmon . . .	2.1	16.0	4.9	75.7
Flour	1.6	39.0	1.8	14.0	Sole	1.9	12.3	0.2	86.1
Herring . . .	1.8	21.0	10.0	70.0	Wheat . . .	3.0	41.0	2.1	12.0
Herring, salt . .	3.1	23.0	12.7	49.0	Wine	...	4.0	...	90.0

The analysis of bread gives conflicting results, the following being taken from respectable sources :—

	A.	B.	C.
Nitrogen . . .	6.8	8.1	12.6
Water	43.0	37.0	14.6
Starch	44.0	47.4	65.6
Sugar	3.4	3.6	4.8
Fat	1.3	1.5	1.4
Mineral . . .	1.5	2.4	1.0
	100.0	100.0	100.0

In 1862 the bread supplied to the French army was found superior in nitrogen to that of other Continental armies, as follows, French being 100 :—

Prussian	. . 50	Austrian	. . 70	Belgian . . 91
Spanish .	. . 69	Dutch	. . 90	Italian . . 96

A sack of flour containing 280 lbs. will make 368 lbs. of bread in England, and 420 lbs. in United States, that is, 7 lbs. of American are equal to 8 lbs. of English flour. The ingredients for 368 lbs. of English bread are :—280 lbs. flour, 3 gallons water, half-gallon yeast, half-gallon alum, and 4 lbs. salt.

The following comparison has been made between flour of Odessa wheat and that used at bakeries at Paris :—

	Odessa Flour	Paris Flour
Water	12.0	10.0
Dry gluten . . .	14.5	10.2
Starch . . .	66.5	72.8
Glucose, &c. . . .	7.0	7.0
	100.0	100.0

The nutritive value of various kinds of flour is stated thus :—

English	. . 100	Canadian	. . 117	Scotch . . .	134
German	. . 115	Essex	. . . 121	United States	145

An analysis of the different kinds of bread supplied to European armies in 1860 showed as follows :—

	French	Prussian	Bavarian	Belgian	Dutch
Starch . .	42	37	54	44	40
Water . .	34	35	30	31	32
Azote . .	9	5	6	9	9
Various . .	15	23	10	16	19
	100	100	100	100	100

The percentage of nitrogen digested in food is as follows :—

	Per Cent.			Per Cent.
Lentils . . .	60	Bread		81
Potatoes . . .	68	Cheese . . .		96
Peas . . .	72	Meat . . .		97
Rice . . .	75	Eggs . . .		98

The time required for digestion is :—

	Hours	Min.		Hours	Min.
Rice . . .	1	0	Mutton, boiled .	3	0
Eggs, raw .	1	30	Beef, roast .	3	0
Apples . .	1	30	Bread, fresh .	3	15
Trout, boiled .	1	30	Carrots, boiled .	3	15
Venison, broiled	1	35	Turnips, boiled .	3	30
Sago, boiled .	1	45	Potatoes, boiled	3	30
Milk, boiled .	2	0	Butter . .	3	30
Bread, stale .	2	0	Cheese . .	3	30
Milk, raw . .	2	15	Oysters, stewed .	3	30
Turkey, boiled .	2	25	Eggs, hard .	3	30
Goose, roast .	2	30	Pork, boiled .	3	30
Lamb, broiled .	2	30	Fowl, roast .	4	0
Potatoes, baked	2	30	Beef, fried .	4	0
Beans, boiled .	2	30	Cabbage . .	4	30
Parsnips, boiled	2	30	Wild-fowl . .	4	30
Oysters, raw .	2	55	Pork, roast .	5	15
Eggs, boiled .	3	0	Veal, roast .	5	30

According to Keleti, the average amount of food required per annum is as follows :—

	Lbs. Food	Containing Lbs. Albumen
Man	1,600	100
Woman	1,200	75
Child	900	50

The man's food to be made up thus :—

	Lbs. Food	Lbs. Albumen
Animal	290	28
Vegetable . . .	1,310	72
Total . .	1,600	100

According to the *Dict. Sciences Medic.*, a man's daily food should contain at least ¾ oz. of azote and 11 oz. of carbon, the proportions of which contained in the food of certain classes are as follows :—

	Per Week	
	Azote, Oz.	Carbon, Oz.
English peasant . . .	7.7	120
Irish peasant . . .	4.0	168
French peasant . . .	6.0	150
Lombard peasant . . .	7.0	175

Animal food constitutes, according to the same authority the following percentage in the weight of all food consumed :—

Irish peasant	.	.	.	.	1 per cent.
French peasant .	.	.	.	7 ,,
French sailor	.	.	.	25 ,,
English "navvy"	.	.	.	28 ,,

The proportions of azote and carbon contained in bread and meat are as follows :—

In	Percentage of	
	Azote	Carbon
Bread	1	30
Meat	3	10

The weekly rations in different countries and classes are as follows :—

	Rations	Nitrogenous	Carbon
	Lbs.	Lbs.	Lbs.
British soldiers .	25.7	2.46	4.84
British soldiers in India .	20.0	2.33	4.52
French soldiers . .	23.6	2.26	5.81
German soldiers . .	28.8	1.56	5.25
Dutch soldiers . .	25.0	1.67	4.82
Chelsea Hospital .	22.6	1.99	5.31
English convicts .	22.2	1.38	4.99
Farm labourer . .	22.1	1.82	5.11
Workhouse, aged . .	17.8	1.50	3.96
Chelsea boys . .	16.7	0.88	3.93

Field-rations of the various armies are as follows :—

	Ounces Daily					
	Beef	Bread	Rice	Coffee	Sugar	Total
British . .	16	24	2	¼	2	44¼
French . . .	7	26	3	½	1	37½
German . . .	8	28	3	½	1	40½
Russian . . .	16	16	...	...	...	32
Austrian . . .	5	26	1	...	...	32
American . .	20	18	2	2	2	44

	Ounces Daily					Energy.
	Nitrogen	Fat	Carbon	Salt	Total	Foot-Tons
British . .	4.1	1.6	17.4	0.8	23.4	3,552
French . .	4.3	1.3	18.0	1.0	24.6	3,719
German . .	4.0	1.1	19.6	1.5	26.2	3,834
Austrian .	3.7	1.6	17.0	1.0	23.4	3,590
Standard .	4.6	3.0	14.3	1.1	23.0	3,888

The rations in use in the United Kingdom are as follow :—

	Weight in Lbs. Weekly				
	Bread	Cooked Meat	Vege-tables	Sugar	Sundries
Soldier . . .	7.0	3.5	7.0	0.7	7.5
Seaman . .	8.8	5.2	3.5	0.9	...
Convict . . .	10.0	2.6	7.6	0.2	1.8
Pauper . . .	7.0	3.0	6.0	0.4	0.8
Female pauper .	6.0	2.0	4.0	0.3	0.6
Lunatic . . .	5.4	2.0	5.4	0.2	1.0
Hospitals . .	6.0	3.0	3.5	0.5	2.0

The components of the British navy rations give the following analysis :—

	Ounces Daily	Components			Energy Foot-Tons
		Nitrogen	Fat	Carbon	
Biscuit . . .	20	2.0	0.2	8.4	1,720
Meat . . .	14	1.8	3.0	5.4	1,310
Peas, flour, &c.	7	1.0	...	3.0	560
Sugar . . .	2	...	...	0.8	240
Cocoa . . .	1	0.2	...	0.7	125
Total .	44	5.0	3.2	18.3	3,955

Prison rations in the United Kingdom are as follows :—

	Ounces Daily		Energy, Foot-Tons	
	Hard Labour	Light Labour	Hard Labour	Light Labour
Bread . .	24.0	21.0	1,992	1,743
Meat . . .	4.5	3.5	340	270
Milk . . .	2.0	2.0	48	48
Molasses .	1.0	1.0	100	100
Oatmeal . .	2.0	2.0	304	304
Cheese . .	0.6	0.6	98	98
Flour . . .	1.3	0.7	192	104
Salt . . .	0.5	0.5	60	60
Cocoa . .	0.5	0.5	62	62
Vegetables .	1.0	1.0	10	10
Potatoes . .	14.0	14.0	530	530
Total .	51.4	46.8	3,736	3,329

The French navy rations weekly are as follows :—

	Weight, Oz.	Azote, Oz.	Carbon, Oz.
Bread	190	2.0	55.5
Meat	77	2.3	8.0
Peas	30	1.2	12.0
Butter	5	...	3.5
Coffee	5	...	1.0
Sugar	6	...	2.5
Wine	120	...	5.0
Brandy	15	...	4.0
Salt	5	...	...
Total . .	453	5.5	91.5

The following table shows approximately the ordinary weekly consumption of food by a male adult between twenty and sixty years :—

	Bread, Lbs.	Meat, Oz,	Butter, &c., Oz.	Sugar, Oz,	Potatoes, Lbs.	Daily Energy, Foot-Tons
U. Kingdom .	9	50	10	36	9	4,030
France . . .	12	35	4	9	13	4,170
Germany . .	11	30	4	9	24	4,920
Russia . . .	11	25	3	5	4	2,960
Austria . .	10	30	4	9	13	3,730
Italy . . .	8	12	2	4	1	1,940
Spain . . .	10	32	2	3	...	2,330
Portugal . .	8	23	2	6	...	1,950
Sweden . .	8	30	6	10	12	3,390
Norway . .	8	35	7	6	12	3,350
Denmark . .	10	30	11	10	8	3,460
Holland . .	9	28	7	16	16	4,090
Belgium . .	11	30	7	13	25	5,050
Switzerland .	11	30	6	12	3	3,170
Europe . .	10½	30	4	11	10	3,600
U. States . .	9	75	10	25	3	3,390
Canada . .	8	43	11	20	14	3,950
Australia . .	10½	95	9	37	7	4,490

The above does not include fish, eggs, fruit, vegetables, chestnuts, rice, and other articles of much importance. The aggregate food for a man doing physical or mental work should be equal to at least 3300 foot-tons daily, for a woman 2200, and for a child 1100 foot-tons.

Meat is apparently the most important element of food. Dr. De Renzi states that 4 per cent. of the population of Naples die of impoverishment of the blood caused by want of meat. At the ironworks of Thorn the operatives fed on vegetables, &c., lost fifteen days a year by sickness until meat was introduced in 1833, when the average fell to three days per operative. See *Food*.

DISEASE.

In 1883 the deaths per 100,000 inhabitants from certain diseases were as follows :—

	Small-pox	Typhoid	Whooping Cough	Diph-theria	Scarlatina	Measles	Infant Diarrhœa
London . .	3	24	40	40	50	61	64
Edinburgh .	...	25	48	45	39	57	43
Glasgow . .	2	46	557	162	90	139	250
Paris . . .	20	92	30	87	4	47	216
Marseilles .	38	139	19	102	6	139	315
Berlin . . .	1	18	29	224	68	96	412
Brussels . .	94	28	33	28	4	31	325
St. Petersburg	46	153	14	136	75	57	236
Vienna . .	10	21	30	35	17	31	76
Baltimore . .	155	91	15	194	82	31	22

The following table shows approximately the ratios of various diseases in 10,000 deaths :—

	England	France	Germany	Russia	Italy	Switzerland	Belgium	Holland	Scandinavia	United States	Canada
Apoplexy	270	400	390	210	360	370	310	280	350	140	110
Bronchitis . . .	1,150	310	400	1,500	30	600	480	220	620	...	130
Cancer	235	...	260	150	160	300	140	180	330	130	126
Diphtheria . . .	55	360	270	210	360	304	280	130	230	480	114
Erysipelas . . .	36	48	35	...	50	...	40	...	...	...	68
Heart	620	290	230	200	580	385	190	180	220	350	370
Measles	184	180	100	80	95	46	165	150	...	...	220
Phthisis	1,100	1,120	1,270	1,960	900	1,110	1,820	950	1,020	1,420	1,620
Pneumonia . . .	510	720	400	1,150	540	600	450	570	710	...	660
Puerperal	49	100	...	70	...	50	...	50	100	40	145
Rheumatism . . .	41	35	25	40	...	...	...	...	40	59	70
Scarlatina . . .	402	20	160	90	10	146	140	40	360	220	458
Scrofula	62	130	...	180	30	...	90	140	70	70	...
Small-pox . . .	130	80	8	40	60	54	150	100	120	...	55
Typhoid	210	720	450	480	240	184	460	460	280	310	364
Whooping-cough .	250	115	...	...	50	112	280	180	185	148	260

Ague.—In 10,000 deaths those from ague were :—

At		At		At	
London	. . 2	Amsterdam	. . 106	Finland	. 180
Lisbon	. . 60	Naples	. . 107	U. States	. 240
Haarlem	. 70	Portuguese army 120		Athens	. . 420
Zeeland	. . 80	Genoa	. . . 133	Rome	. . 460

Apoplexy.—In 10,000 deaths those from this disease were :—

At		At		At	
Amsterdam	. 380	Geneva	. . 400	Naples	. . 370
Athens	. . 630	Gibraltar	. . 150	New Orleans	91
Bavaria	. . 370	Hamburg	. 620	Nova Scotia	. 55
Belgium	. 410	Holland	. . 280	Paris	. . . 330
Berlin	. . 410	Iceland	. . 100	Quebec	. . 105
Berne	. . 420	Ireland	. . 160	Rome	. . . 530
Bologna	. 420	Italian cities	. 360	St. Helena	. 430
Bordeaux	. . 780	Linia	. . . 70	St. Petersburg	210
Brussels	. 310	Lisbon	. . 685	Scotland	. . 420
Buda Pesth	. 140	Malaga	. . 350	Shanghai	. . 200
Canada	. . 98	Malta	. . 600	Spain	. . . 400
Christiania	. 220	Mantua	. . 590	Sweden	. . 590
Copenhagen	. 230	Mexico	. . 340	Turin	. . . 610
England	. . 280	Milan	. . 200	U. States, Nor.	184
Frankfort	. . 380	Montevideo	. 430	,, South	96
French cities	. 400	Munich	. . 390	Zurich	. . . 400

The occurrence of apoplexy is most frequent in France, Russia, and Holland in winter, and in Canada in summer :—

Seasons	France	Russia	Holland	Canada
Spring . . .	27.0	24.0	25.8	25.3
Summer . . .	23.7	23.8	20.1	26.3
Autumn . . .	19.3	21.2	23.6	22.5
Winter . . .	30.0	31.0	30.5	25.9
Total .	100.0	100.0	100.0	100.0

Its occurrence according to months, taking the year as 1200, was as follows :—

	London (1840)	Denmark	France	Calcutta	Italian Cities
January . .	123	122	139	108	143
February .	108	110	112	102	135
March . .	104	93	91	111	110
April . . .	95	99	127	138	95
May . . .	96	97	106	97	94
June . . .	76	93	109	64	74
July . . .	89	98	109	75	78
August . .	88	77	67	83	74
September .	98	85	67	87	80
October . .	89	103	67	97	90
November .	120	110	97	120	110
December .	114	113	109	118	117
	1,200	1,200	1,200	1,200	1,200

The increase of this disease in England is remarkable, deaths yearly per million inhabitants being as follows :—

1850–66	. . . 457	1874–80	. . . 550
1867–70	. . . 504	1886	. . . 577
1871–73	. . . 517		

In Holland it is found that of 100 patients 46 are males, 54 females.

The distribution of this disease according to age in France was :—

Of 1000 Cases

Age		Age		Age	
Under 10	. . 22	30–40	. . . 110	61–70	. . . 229
10–20	. . 30	41–50	. . . 153	Over 70	. . 192
21–30	. . 62	51–60	. . . 202		

Asthma.—Of 10,000 deaths there are from this disease 66 in England, 48 in Scotland, and 33 in Ireland. Deaths according to season show :—

Spring .	.	.	.	.	16.1
Summer	.	.	.	.	7.0
Autumn	.	.	.	.	23.2
Winter .	.	.	.	.	53.7
					100.0

Bright's Disease.—In 10,000 deaths there were of this disease :—

At		At		At	
Amsterdam	. 120	Denmark	. . 80	Lisbon	. . 30
Berne	. . 100	Frankfort .	. 130	Munich	. . 30
Brussels	. . 50	French cities .	14	Norway	. . 60
Budapesth	. 90	Holland	. . 50	Shanghai	. . 150
Copenhagen	. 100	Italy	. . . 40	United States	35

Bronchitis.—In 10,000 deaths there were of this disease :—

At		At		At	
Amsterdam	. 220	Canada	. 130	London .	. 1,450
Athens	. 391	England	. 1,080	Rome	. . 290
Berlin	. . 420	Ireland .	. 1,220	St. John's	. 2,330
Brussels	. 480	Lisbon .	. 420	Scotland	. 1,310

The death-rate among bronchitis patients in the Paris hospitals is 6 per cent. in the quarter ending March, 4 per cent. in that ending June, 2 per cent. in the September, and 6 per cent. in the December quarter, giving an average of 5 per cent. for the year. In Sweden and Norway the prevalence of bronchitis in the various months is (taking 1200 per annum as a total) thus :—

Month	Sweden	Norway	Month	Sweden	Norway
January . .	150	160	July . . .	49	53
February . .	160	152	August . .	46	48
March . .	143	132	September .	58	62
April . . .	130	112	October . .	82	82
May . . .	102	96	November .	104	110
June . . .	67	72	December .	109	121

The prevalence of bronchitis among British troops on foreign stations was as follows :—

Bronchitis Patients per 1000 Sick

St. Helena	. 61	Mauritius .	. 84	Gibraltar .	. 132
Ceylon .	. 70	Jamaica . .	85	Malta . . .	140
Bengal .	. 71	Cape Colony	98	Canada . .	156

The ratio among garrisons in the United Kingdom was 161.

Deaths occur in London according to season thus :—

Spring .	.	.	.	.	.	20.2
Summer	.	.	.	.	.	12.5
Autumn	.	.	.	.	.	27.0
Winter	.	.	.	.	.	40.3
						100.0

Calculus or Stone.—In 10,000 deaths there were of this disease :—

At		At		At	
Belgium	. . 4	Geneva .	. . 6	Riga .	. . . 3
Brussels	. . 4	Hamburg .	. . 2	Russia .	. . . 5
Copenhagen	. 13	Holland .	. . 3	Turin .	. . . 2
Denmark	. . 4	Iceland .	. . 20	U. States N. .	. 1
England	. . 6	Paris. .	. . 2	U. States, S. .	2

The ages at which this disease occur are as follows :—

Age	Males	Females
Under 30 . . .	4.5	18.2
30–40 . . .	14.8	28.0
41–50 . . .	34.3	20.6
51–60 . . .	21.5	22.0
Over 60 . . .	24.9	11.2
Total . .	100.0	100.0

In 100 cases 38 are males, 62 females.

Cataract.—Of 100 cases 54 are males, 46 females. The ratio of age is shown thus :—

Per 1000 Cases

Age		Age		Age	
Under 10 . .	28	31–40 . . .	36	61–70 . . .	344
10–20 . . .	32	41–50 . . .	102	Over 70 . .	218
21–30 . . .	36	51–60 . . .	204		

Cancer.—In 10,000 deaths there were of this disease :—

At		At		At	
Amsterdam .	230	England, men	170	New York .	80
Bâle . . .	320	Do., women .	300	Norway . .	320
Belgium . .	140	Frankfort . .	370	Paris . . .	270
Berlin . . .	160	Geneva . .	530	Potsdam . .	250
Berne . . .	320	Glasgow . .	130	Rome . . .	170
Bordeaux . .	320	Hamburg . .	330	St. Petersburg	150
Breslau . .	360	Holland . .	180	Scotland . .	170
Brussels . .	420	Iceland . .	30	Shanghai .	300
Carlsruhe . .	330	Ireland . .	190	Stettin . .	210
Christiania .	290	Kiel . . .	340	Stockholm .	240
Copenhagen .	360	Königsberg .	180	Turin . . .	160
Dantzig . .	180	Lisbon . .	260	United States	130
Dresden . .	240	London . .	200	Do., North .	170
Edinburgh .	230	Milan . .	220	Do., South .	90
England . .	230	Montevideo .	150		

Mental worry, says Dr. Herbert Snow, of the Cancer Hospital, is the chief exciting cause of cancer. In 1864 in England the proportion of cancer sufferers was 385 to the million ; in 1888 it had risen to 610—the number of deaths in the latter year being 6284 males, and 11,222 females, or 17,506 in all.

Cholera.—The losses may be approximately set down in the principal visitations of this epidemic as follows :—

	1832	1849	1854	1865	1873	1884	Total
United Kingdom	53,000	55,000	22,000	18,000	...	...	148,000
France	115,000	110,000	144,000	15,000	63,000	10,000	457,000
Germany	67,000	80,000	119,000	33,000	52,000	...	351,000
Austria	99,000	145,000	218,000	220,000	436,000	...	1,118,000
Italy	...	...	...	13,000	...	14,300	?
Spain and Portugal . . .	...	...	236,700	150,000	...	119,000	507,000
Other countries	200,000	850,000	400,000	245,000	70,000	10,000	1,775,000
Total . .	534,000	1,240,000	1,139,700	694,000	621,000	153,900	4,382,600

According to Rosemberg, one million persons perished in the cholera of 1848–49. According to Kolb, in that visitation in Russia 1,687,000 persons were attacked, of whom 668,000 died. It was apparently the worst plague that visited Europe since the Middle Ages. The death-rate on that occasion was 22 per 100 sick in England, and 40 in Austria. In the previous visitation of 1832 the rate varied little in all countries, from 38 to 42 per cent. In the cholera of 1855 it was as follows :—

	Per 100 Cases			Per 100 Cases
Spain . . .	30	Sweden . .		52
Austria . . .	42	Prussia . .		59
Russia . . .	50	Denmark . .		65

In that of 1866 the average was 50 per cent. in Belgium and 55 in Italy, being in the latter 56 for men and 54 for women.

The victims in various cities in 1865 were as follows :—

Deaths per 10,000 Inhabitants

London . .	18	Paris . . .	66	Madrid . .	102
Dublin . .	41	Berlin . . .	83	Brussels . .	184
Vienna . .	51	Naples . .	89	Palermo . .	197
Marseilles .	64	St. Petersburg	98	Constantinople	738

The greatest mortality was at Rome and Madrid on Sundays, at London and Berlin on Wednesdays, and at Paris on Saturdays.

The following table shows the deaths from cholera in various cities at different periods :—

City	Date	Deaths	In 100 Sick	In 10,000 Population	City	Date	Deaths	In 100 Sick	In 10,000 Population
Aleppo	1865	12,000	...	1,020	Malaga . . .	1865	2,000	40	200
Antwerp . . .	1865	2,300	50	205	Madrid . . .	1865	3,300	...	102
Berlin	1865	5,600	...	83	Naples . . .	1884	7,100	...	144
Brussels . . .	1865	3,100	75	184	Palermo . . .	1867	4,000	...	197
Constantinople .	1865	12,000	...	190	,, . . .	1884	3,000	53	125
Copenhagen . .	1853	4,800	65	402	Paris . . .	1832	18,700	...	205
Dublin	1865	1,200	...	41	,, . . .	1848	19,200	...	190
Genoa	1854	2,200	52	190	,, . . .	1854	9,100	...	76
Guadeloupe . .	1856	1,900	...	1,480	,, . . .	1866	9,900	...	66
Liège	1865	2,600	55	280	Riga . . .	1848	2,000	29	390
London	1832	6,700	48	40	St. Petersburg .	1848	28,000	54	510
,, ...	1849	14,600	47	70	,, . . .	1865	6,000	...	98
,, ...	1854	40,300	...	180	Smyrna . . .	1856	2,500	45	300
,, ...	1865	5,500	...	20	Stockholm . .	1832	3,300	41	405
Marseilles . . .	1884	1,800	...	49	Toulon . . .	1854	2,600	...	510

The ratios of age in the deaths at Paris were as follows:—

Age	1832	Age	1854
	Ratio		Deaths per 10,000 Persons
Under 10 . .	9.2	Under 2 .	255
10–20 . . .	3.2	2–5 . . .	104
20–30 . . .	11.8	5–15 . . .	33
30–40 . . .	15.2	15–20 . .	55
40–50 . . .	15.2	20–40 . .	66
50–60 . . .	15.4	40–60 . .	79
Over 60 . . .	30.0	Over 60 .	171
	100.0		

Its ravages in 1854 were especially among very young or very old persons. The ratio of sexes in 1832 was 100 males to 101 females, and in the same year the mortality according to the floors in houses occupied by the patients was distributed thus:—

Basement	.	.	.	.	.	13.5
1st floor .	.	.	.	.	.	25.8
2nd floor	.	.	.	.	.	20.4
Over 2nd floor	.	.	.	.	.	40.3
		Total	.	.	.	100.0

One of the most deadly outbreaks on record was at the Salpetrière lunatic asylum, near Paris, in 1849, when 45 per cent. of the inmates were attacked, and of the patients 76 per cent. died. In the Anglo-Indian army cholera makes more ravages among Europeans than natives, viz.:—

Soldiers attacked . . 250 Europeans to 100 natives
Deaths 230   ,,   ,,   ,,

The prevalence at Bombay according to months, taking the year as 1200, is as follows:—

January	.	.	122	July .	.	135
February	.	.	113	August .	.	49
March .	.	.	130	September .	.	31
First quarter	.	365	Third quarter	.	215
April	.	.	151	October	.	40
May	.	.	151	November	.	50
June	.	.	143	December	.	85
Second quarter	.	445	Fourth quarter	.	175

Convulsions (Infant).—In 10,000 deaths there were of this disease as follows:—

At		At		At	
Algiers . .	790	Christiania .	110	Mexico . .	630
Amsterdam .	600	Copenhagen	560	Paris . .	667
Athens . .	266	Dresden .	2,110	Rio Janeiro .	320
Berlin .	1,380	England . .	440	St. Petersburg	200
Brussels .	450	Glasgow .	300	Shanghai .	150
Buda Pesth .	730	Hamburg .	1,070	Turin . .	560
Cairo . .	2,030	Lisbon . .	190	U. States (N.)	320
Canada . .	180	London . .	360	U. States (S.)	170

Croup.—In England there are of 10,000 deaths 70 from croup, and in Bavaria 392. In Sweden and Norway 52 per cent. of cases are fatal. The prevalence of the disease according to months (taking the year as 1200) is shown thus:—

Month	Sweden	Norway	Month	Sweden	Norway
January .	144	141	July . .	45	47
February .	136	132	August .	48	50
March . .	130	134	September .	76	89
April . .	110	105	October .	108	103
May . .	88	84	November	128	125
June . .	64	64	December	123	126

Cretinism.—According to a statement published in 1860, the number of cretins was as follows:—

Country	Number	Per Million Population
Switzerland	20,000	8,100
France	31,000	870
Italy	10,460	480
Germany	20,200	550
Austria	13,800	440
Ireland	4,900	740
Denmark	1,990	1,470
United States	1,200	40

Diabetes.—Deaths from this disease are seven in 10,000 in the United Kingdom, and 150 at Shanghai. The ratio of sexes among patients is:—

					France		England
Males	.	.	.	.	74	...	67
Females	.	.	.	.	26	...	33
					100	...	100

The ratio of age and profession are in France as follows:—

Age	Males	Females	Profession	Per Cent.
Under 20	14.4	32.0	Capitalists . .	25
20–30	24.4	26.4	Lawyers . .	21
30–40	28.4	20.7	Merchants .	15
40–50	18.0	9.4	Clergy . . .	8
Over 50	14.8	11.5	Various . .	31
Total .	100.0	100.0	Total .	100

This disease was in 45 per cent. of cases accompanied by obesity, and in 38 per cent. by rheumatism.

Diarrhœa.—In 10,000 deaths there were of this disease:—

In		In		In	
London . .	460	Ireland . .	250	Mexico . .	950
England . .	212	Canada . .	110	Hong-Kong	1480
Scotland . .	210	United States	880		

The prevalence of this disease according to months (taking the year as 1200) was as follows:—

Month	Sweden	Norway	Bavaria	Belgium
January . .	41	98	52	83
February . .	41	89	56	77
March . .	31	72	53	102
April . .	33	61	53	93
May . . .	30	65	52	98
June . . .	55	60	70	109
July . . .	150	113	110	138
August . .	292	190	210	132
September .	227	143	238	112
October . .	149	95	160	96
November .	94	109	89	79
December .	54	105	57	81
Year .	1200	1200	1200	1200

Digestive Disorders.—In 10,000 deaths there were of these diseases:—

In		In		In	
Brussels .	1,500	Genoa . .	1,580	Rome . .	1,100
Catania . .	2,900	Milan . .	1,300	Turin . .	1,550
England .	990	Paris . .	1,050		

Diphtheria.—In 10,000 deaths there were of this disease :—

In		In		In	
Amsterdam	. 200	Dresden	. . 130	Italian cities	. 360
Athens .	. 219	England	. . 55	London .	. 180
Bavaria	. . 248	Edinburgh	. 250	Munich	. 240
Berlin .	. . 320	France. .	. 360	New York	. 300
Brussels	. 440	Frankfort .	. 130	Philadelphia	. 370
Canada .	. 300	Glasgow .	. 220	Roumania .	. 360
Christiania	. 440	Hamburg.	. 320	St. Petersburg	210
Copenhagen	. 160	Holland .	. 130	United States	480

The prevalence of this disease according to months (taking the year as 1200) was in Sweden, Norway, Saxony, and the hospitals of Paris as follows :—

	Sweden	Norway	Saxony	Paris	Death-Rate at Paris
					Per Cent.
January . .	121	136	135	101	76
February .	119	120	126	104	76
March . .	99	112	100	116	77
April . . .	93	89	79	106	71
May . . .	85	88	75	110	73
June . . .	72	79	71	84	65
July . . .	69	79	54	75	51
August .	77	73	50	90	62
September .	86	87	91	83	71
October . .	112	102	119	103	70
November .	137	118	155	117	75
December .	130	117	145	111	74
	1,200	1,200	1,200	1,200	72

Deaths in Paris from this disease were as follows :—

Period	Deaths Yearly	Per 10,000 Inhabitants
1865–69 . . .	816	43
1872–75 . . .	1,165	61
1876–80 . . .	2,020	95
1881–83 . . .	2,230	99

Dropsy.—Of 10,000 deaths there are from this disease in England 94, in Scotland 56, in Ireland 98, in Bavaria 650, and in Belgium 423. Deaths occur in England according to seasons thus :—

Spring	24.0
Summer	21.6
Autumn	26.4
Winter	28.0
	100.0

Drink.—Lombard states that in 10,000 deaths in various countries the ratio for deaths from drink stood thus :—

Italy . . .	1	London . .	12	Brussels . .	40
Genoa . . .	5	Berlin . . .	13	Copenhagen .	70
Turin . .	5	Bâle . . .	20	New York .	75
Amsterdam .	5	Breslau . .	20	Oldenburg .	87
Munich . .	6	Vienna . .	20	Kiel . . .	90
Dublin . .	10	England . .	21	Stockholm .	90
Edinburgh .	10	Berne . . .	35		

In nine years ending 1876 the annual deaths from drink in France averaged 448, of which 87 per cent. were men and 13 per cent. women.

Another table on this subject will be found under *Deaths,* p. 180.

Dysentery.—In 10,000 deaths there were of this disease :—

In		In		In	
Ceylon . .	2,300	Holland . .	290	Senegal .	2,900
England . .	10	Italian cities	130	Valparaiso	1,060
Gold Coast .	420	Lima . . .	610	United States	160
Guinea .	4,130	Montevideo .	570	Zanzibar . .	420

On the Guinea Coast it attacks 50 per cent. of the garrison yearly, and 8 per cent. of cases prove fatal. At Bombay 9 per cent. of the troops are attacked, and 9 per cent. of cases prove fatal. Annesley gives the percentage of soldiers attacked at various stations thus :—

	Per Cent.		Per Cent.		Per Cent.
North India .	12	South India .	34	Hyderabad .	36
Mysore . .	22	Middle India	38	Madras . .	47

According to Hirsch, there have been in various parts of Europe since 1719 no fewer than 546 epidemics of dysentery, of which 404 were in summer, 113 in autumn, and 29 in other seasons. In Saxony it is found that, supposing 1200 deaths occur in a year from this disease, the months will stand thus :—

January	6	July	. 101
February . . .	20	August . . .	. 367
March	14	September . .	. 352
First quarter .	40	Third quarter	. 820
April	13	October . . .	. 181
May	13	November . .	. 73
June	27	December . .	. 33
Second quarter	53	Fourth quarter	. 287

The ages of soldiers at Mauritius attacked by this disease were :—

Age						Cases per 1000 Men
18–24	.	.	.	.	.	. 6
25–33	.	.	.	.	.	. 11
34–40	.	.	.	.	.	. 19
41–50	.	.	.	.	.	. 36

Epilepsy.—The ratio of deaths from this disease among 10,000 deaths is as follows :—

England	. . 51	Ireland .	. . 38
Scotland	. . 33	Norway .	. . 13

In France the attacks of this disease, taking the year as 1200, occur thus :—

January . . .	106	July	. 98
February . .	111	August . . .	. 83
March . . .	103	September . .	. 87
First quarter .	320	Third quarter	. 268
April . . .	104	October . . .	. 94
May . . .	107	November . .	. 95
June . . .	112	December . .	. 100
Second quarter	323	Fourth quarter	. 289

Erysipelas.—In 10,000 deaths there were of this disease :—

In		In	
Belgium . . .	. 40	Ireland . . .	. 25
Canada . . .	. 40	Italy . . .	. 50
Cape Colony .	. 25	Malta . . .	. 14
England. . .	. 36	Mexico . . .	. 20
France . . .	. 48	Montevideo .	. 53
Germany . .	. 35	Paris . . .	. 70
Gibraltar . .	. 15	Scotland . .	. 50
India . . .	. 17	Switzerland .	. 40

Fever.—The predisposition to fever varies with age in the following degrees :—

Age	Degree	Age	Degree
Under 5	10	25–30	102
5–10	94	30–40	44
10–15	182	40–50	16
15–20	269	50–55	6
20–25	197	Over 55	2

Napoleon lost 51,000 soldiers by fever in his campaign of 1812, and the French army 17,000 men in the Crimea in 1855.

Fractures.—Dr. Gurlt (Berlin, 1863), collected statistics of 17,300 cases ; results :—

Head	. . . . .	5 per cent.
Trunk	. . . . .	14 ,,
Arms	. . . . .	48 ,,
Legs	. . . . .	33 ,,
		100 ,,

The total showed 75 per cent. males, 25 per cent. females, the relation of cases according to age with regard to sexes being :—

Age		Males		Females
Under 12	. . . . .	72	to	28
13–20 .	. . . .	86	,,	14
21–30 .	. . . .	91	,,	9
31–40 .	. . . .	96	,,	4
51–80 .	. . . .	65	,,	35

Fractures are more frequent in winter than in summer.

Goitre.—This disease as well as cretinism is common in those parts of France and Italy more than 3000 feet over sea-level. There are 420,000 goitrous people in France, and 2 per cent. of conscripts are rejected for this cause. There are 3400 cases in Siberia.

Gout.—The ratio of deaths in England from this disease is usually 12 per 10,000 ; it is eighteen among men and six among women. Of 100 patients in France 94 are usually males, 6 females. The ratio of age at which first symptoms appear is shown thus :—

Age		
Under 20	. . . . . .	2.4
20–30	. . . . . .	27.6
30–40	. . . . . .	37.6
40–50	. . . . . .	23.0
Over 50 .	. . . . .	9.4
		100.0

Of 10,000 patients admitted to hospital at Munich, 24 suffered from gout ; in the same number 210 at St. George's Hospital, London, and at Paris only one.

Heart-Disease.—In 10,000 deaths there were of this disease :—

In		In		In	
Algiers	100	Germany	230	Norway	170
Amsterdam	290	German cities	270	Paris	270
Athens	323	Holland	180	Rio Janeiro	350
Belgium	190	Hungary	170	St. Petersburg	200
Brussels	685	Ireland	510	Scotland	650
Canada	370	London	420	Shanghai	1,510
Copenhagen	320	Mexico	95	Switzerland	350
England	610	Milan	640	Turin	490
Edinburgh	490	Montevideo	470	United States	350
France	290				

The ages at which this disease prevails in France are shown by the ratio of deaths thus :—

Of 1000 Deaths

Age		Age		Age	
Under 10	2	31–40	388	61–70	50
10–20	10	41–50	254	Over 70	28
21–30	140	51–60	128		

Hepatitis.—In 10,000 deaths there were of this disease :—

In		In		In	
Amsterdam	81	Italy	90	Portugal	94
Brussels	81	Malta	250	St. Helena	290
Buenos Ayres	350	Mexico	380	Senegal	500
Corfu	150	Montevideo	340	Shanghai	740
Frankfort	24	Paris	130	Swatow	2,500
French cities	110				

The ratio of British soldiers on foreign service attacked in twelve months by this disease was as follows :—

In	Per 1000	In	Per 1000	In	Per 1000
Australia	3	Cape	27	Mauritius	24
Bengal	54	Ceylon	48	N. Zealand	6
Bombay	37	Hong-Kong	26	Shanghai	14
Burmah	61	Madras	73	Yokohama	14

Among Sepoy troops the ratio is only 3, and on the Abyssinian expedition it was 14 per 1000.

Hernia.—The number of conscripts per 1000 affected by this disease was in Italy 21, Sardinia 17, Corsica 17, Nice 28, France 33.

Hydrophobia.—The annual number of deaths from hydrophobia in one million deaths in various countries from this disease was as follows :—

Country	Period	Deaths Yearly, per Million	Country	Period	Deaths Yearly, per Million
England	1853–57	25	Prussia	1816–70	165
,,	1869–88	74	,,	1871–73	90
France	1851–60	24	Sweden	1786–90	282
,,	1861–72	42	,,	1856–60	40
Bavaria	1851–56	42	Belgium	1856–60	32

There has been an increase in France since the dog-tax was imposed in 1860. Tables for ten years in France down to 1872 showed that the disease declared itself in the following ratio of days after the person was bitten :—

Days		Per Cent.
Under 20	. . . . .	8.7
20–40	. . . . .	31.0
40–60	. . . . .	29.8
60–90	. . . . .	21.7
Over 90 .	. . . .	8.8
	Total . .	100.0

The term of incubation when animals were bitten varied as follows :—

Days	Horses	Cows	Sheep	Dogs
Under 20	4.4	...	16.5	16.8
20–30	13.2	30.0	45.2	26.6
30–40	8.8	35.0	33.0	21.7
40–50	26.4	25.0	3.4	14.0
Over 50	47.2	10.0	1.9	20.9
Total . .	100.0	100.0	100.0	100.0

Of 3000 cases collected in thirty years by eleven French physicians the bites were :—

In		
Spring .	. . . . .	27.6
Summer	. . . . .	25.5
Autumn	. . . . .	22.5
Winter .	. . . . .	24.4
	Total .	100.0

The average term of incubation was approximately influenced by the age of the person bitten, and also the relative mortality :—

Age		Days of Incubation	Death-Rate
Under 10	. . .	55	36 per cent.
10–20	. . .	52	39 ,,
21–30	. . .	64	60 ,,
31–40	. . .	60	61 ,,
Over 60	. . .	65	70 ,,
General average .	. .	60	47 ,,

The above was for a period of ten years, but tables for 23 years down to 1872 reduced the death-rate in France to 42 per cent of persons bitten by mad dogs, &c., viz.:—

Bite in	Number Bitten	Died	Ratio of Deaths	Mean Days of Incubation
Hands, arms .	485	213	44 per cent.	74
Face	102	90	88 ,,	48
Legs	190	40	21 ,,	61
Body	80	12	15 ,,	...
Total .	857	355	42 ,,	...

Of 717 recorded cases in France in the above period, 655 persons were bitten by a dog, 38 by a cat, 1 by a fox, and 1 by a cow.

Bouley's tables for 1863–68 showed that 31 per cent. of cauterised persons died, and 85 per cent. of non-cauterised. After the disease making its appearance death ensued usually on the third or fourth day, as the following table shows:—

First or second day	. . . .	28.1
Third or fourth day	. . . .	53.7
Over fourth day .	. . . .	18.2
		100.0

Under Dr. Pasteur's treatment the following results have been obtained at Paris:—

Year	Cases Treated	Died	Recovered
1887	. . . 306	... 3	... 303
1888	. . . 385	... 4	... 381

The British Government in the above two years sent 85 patients to be treated by Dr. Pasteur, of whom 5 died and 80 recovered.

Influenza.—This epidemic is caused by sudden changes of temperature. On January 2, 1782, at St. Petersburg, the thermometer suddenly rose 40 degrees in one night, and 40,000 people were attacked next day. In 1827 it carried off thousands of horses all over Europe. In 1872 it killed 16,000 horses in New York city. In December 1889 it ravaged Europe, attacking over three million persons, but the mortality was probably under 2 per cent. of cases.

The duration of the attack varies with age, the French reports showing thus:—

Age.	Days	Age	Days
20 to 30 . . .	7	50 to 60 . . .	12
30 to 50 . . .	9	Over 60 . . .	23

Leprosy.—The number of lepers in various countries is as follows:—

Canton	.	.	10,000	Norway .	. .	1,770
Crete	.	.	900	Portugal .	. .	3,000
Greece	.	.	350	Reunion .	. .	600
Iceland	.	.	13	Rio Janeiro	. .	120
India	.	.	131,600	Sandwich Islands	.	1,800
Mauritius	.	.	3,300	Sweden .	. .	100

The establishment at Molokai, Sandwich Islands, was several years under the charge of Father Damien, who died in 1889. The proportion of sexes in Greece is 64 males to 36 female lepers, and the ages at which the disease makes its first appearance give the following ratios:—

Age	Males	Females	General Average
Under 10	10.8	2.8	8.0
10–20	33.0	38.6	35.0
20–30	28.0	23.0	26.0
30–40	20.2	27.6	23.0
Over 40	8.0	8.0	8.0
Total .	100.0	100.0	100.0

In Russia leprosy is found in sixty-five districts, and the number of fresh victims registered in 1887 was 615. This would lead us to suppose that the existing number of lepers in the empire is about 6000.

Indian statistics for 1881 showed lepers thus:—

Males	98,982	Bengal	53,880
Females	32,636	Madras, &c. . .	77,738
Total .	131,618	Total .	131,618

Norway has five leper hospitals, containing altogether about 600 patients. The disease is on the decline, viz.:—

Year				Lepers	Per 100,000 Inhabitants
1856 .	.	.	.	2,612	191
1875 .	.	.	.	1,771	98

In Cyprus a leper-farm was established in 1830, one mile from Nicosia : area, 100 acres, tillage 11 acres ; house of 26 rooms occupied by :—

Greeks	. . . .	44	Males	. . . .	33
Turks	. . . .	2	Females	. . . .	13
Total .	46	Total . .	46

Death-rate, 16 per cent. per annum ; new patients 14 in the year (1879). All very clean. Five married couples ; two have children quite healthy, but rest are childless. All the lepers have lost fingers. One woman of 80 has been there fifty years.

Measles.—In 10,000 deaths there were of this disease—in England 184, London 265, Scotland 140, Ireland 110, and Holland 150.

The prevalence of this disease, as shown by the ratio of deaths in the various months, taking the year as 1200, was:—

	London	Saxony		London	Saxony
January .	85	119	July . . .	117	94
February .	55	112	August .	108	120
March . .	74	84	September .	96	64
April . .	80	65	October .	100	64
May . .	82	90	November .	119	119
June . .	125	93	December .	159	176
Half year	501	563	Half year	699	637

Meningitis. — In 10,000 deaths there were of this disease :—

In		In		In	
Amsterdam .	370	Buda-Pesth .	460	St. Petersburg	500
Belgium . .	280	France . . .	300	United States	190

Epidemics of this disease have occurred : we have no returns of the number attacked, but the death-rate per 100 patients is recorded thus :—

Versailles . .	41	Sweden and }	33	Metz	70
Naples . . .	46	Norway . }		Aigues Mortes	75
Strasburg . .	51	Lille . . .	65	Rochefort . .	84
		Orleans . .	70		

The general relative mortality was 63 per cent., most of the above epidemics occurring among garrison troops. Swedish statistics give the following particulars :—

Age	Ratio of Cases	Death-Rate
Under 3 . . .	23.0	42 per cent.
3–10 . . .	33.6	25 ,,
10–20 . . .	31.2	35 ,,
Over 20 . . .	12.2	30 ,,
Total . .	100.0	33 ,,

Mumps.—Lombard gives the ratio of age of cases thus :—

In 1000 Patients

Age		Age		Age	
Under 5 . .	95	10–15 . . .	256	30–40 . . .	108
5–10 . . .	243	15–30 . . .	230	Over 40 . .	68

The prevalence of cases according to months was as follows, according to Hirsch :—

January	.	.	.	292	July	.	.	.	.	55
February	.	.	.	97	August	.	.	.	.	14
March	.	.	.	124	September	.	.	.	27
First quarter	.	513			Third quarter	.	96
April	.	.	.	124	October	.	.	.	176
May	.	.	.	27	November	.	.	.	110
June	.	.	.	70	December	.	.	.	84
Second quarter	.	221			Fourth quarter	.	370

Neuralgia.—The prevalence of this disease according to sex is variously stated, viz. :—

	Anstie	Valleix	Eulenberg	Medium
Males . .	32	47	28	36
Females . .	68	53	72	64
Total .	100	100	100	100

The ratio according to age is stated thus :—

Age					Valleix	Eulenberg
Under 20 .	.	.	.	.	8.1	6.0
20–30	.	.	.	.	22.9	19.0
30–50	.	.	.	.	44.8	55.0
Over 50	.	.	.	.	24.2	20.0
Total	.	.			100.0	100.0

Obesity.—Of 100 patients, 36 are men and 64 women. The disease is hereditary in 49 per cent. of cases. Remarkable instances of obesity are the following :—

Name	Weight, Lbs.	Age	Residence
James Mansfield .	476	82	Debden, Monmouth
Mr. Bright .	596	29	Maldon, Essex
Dan. Lambert .	739	40	Stamford, Lincoln

Ophthalmia.—Of 1000 persons in hospitals in Sweden, 48 suffered from this disease.

Paralysis.—Of 100 cases of general paralysis 86 are male, 14 female. The ratio of age is thus :—

Age				Males	Females
Under 30	.	.	.	7.1	...
30–40	.	.	.	40.8	32.0
41–50	.	.	.	33.4	50.0
Over 50	.	.	.	18.7	18.0
Total	.	.	100.0	100.0

Of 10,000 deaths there are from this disease 260 in England, 280 in Scotland, and 145 in Ireland. Deaths in England according to season :—

Spring	.	.	.	.	.	.	24.2
Summer	.	.	.	.	.	19.0
Autumn	.	.	.	.	.	25.6
Winter	.	.	.	.	.	31.2
Total	.	.	.	100.0

The ratio of age in cases of spinal paralysis is as follows :—

Under 16	.	.	.	.	.	9.5
16–20	.	.	.	.	.	26.4
20–25	.	.	.	.	.	18.0
25–35	.	.	.	.	.	26.4
35–45	.	.	.	.	.	13.5
Over 45	.	.	.	.	.	6.2
Total	.	.	.	100.0

In 100 patients 70 were males and 30 females.

Pellagra.—The number of cases yearly, per million inhabitants, is 150 at Lodi, 800 at Cremona, 2400 at Bergamo, and 2900 at Brescia. About 1000 persons die of pellagra yearly in Venetia.
In 1879 the sufferers from pellagra were :—

	Number	Per 1000 Inhabitants
Lombardy . . .	40,800	31.7
Venetia . . .	29,800	30.5
Emilia . . .	18,700	23.7
Other provinces .	8,600	...
Total . .	97,900	...

Peritonitis.—The ratios of age of patients stand thus :—

Age						Per Cent.
Under 20	.	.	.	.	.	14.0
20–30	.	.	.	.	.	26.0
30–40	.	.	.	.	.	27.5
Over 40	.	.	.	.	.	32.5
Total	.	100.0

Phthisis.—In 10,000 deaths there were of this disease as follows :—

Alabama	630	Flanders	2600	Norway	1288
Alexandria	250	Florida	570	Nuremberg	1410
Amsterdam	870	France	1120	Paris	1430
Antwerp	1590	Frankfort	1550	Pennsylvania	1420
Archangel	1960	Geneva	1250	Philadelphia	1320
Athens	1076	Glasgow	1580	Riga	300
Augsburg	1000	Holland	950	Rio Janeiro	1880
Bavaria	1010	Iceland	5	Rome	1140
Belgium	1825	Ireland	1160	Russia	1960
Berlin	990	Lima	1770	St. Petersburg	1510
Bologna	1340	Lisbon	1147	S. Francisco	1590
Bordeaux	1620	London	1280	Santa Cruz	1400
Brussels	1750	Louisiana	970	Scotland	1050
Buda-Pesth	1545	Lyons	1340	Shanghai	600
Cairo	1010	Maine	2580	Stockholm	1600
California	1380	Maryland	1720	Sweden	1340
Canada	1610	Massach'setts	2000	Switzerland	770
Catania	450	Melbourne	740	Turin	830
Christiania	1720	Mexico	490	Ulm	1130
Copenhagen	1270	Milan	1320	U. States	1420
Corfu	2190	Missouri	750	Vienna	2080
Drontheim	1700	Montevideo	1270	Vologda	2060
England	1010	Munich	1320	Wisconsin	1320
Finland	840	New York	1550	Zeeland	640

Height above sea-level has a marked effect on this disease, as shown by the following death-rates from phthisis in Baden and Switzerland :—

Feet over Sea	Per 10,000 Deaths		
	Baden	Switzerland	Medium
Less than 1,600 .	1,040	860	950
1,600–2,700 .	830	730	780
2,700–3,200 .	750	390	570
Over 3,200 .	860	500	680

Similar results are obtained in the Andes.
Some occupations predispose to phthisis ; the following table shows among 100 sick persons of each trade the ratio of those suffering from it :—

RATIO OF PHTHISIS TO ALL SICKNESS

	Per Cent.		Per Cent.		Per Cent.
Needle-makers	70	Hairdressers	32	Masons	13
File-makers	63	Weavers	25	Millers	11
Lithographers	48	Painters	25	Brewers	11
Grinders	40	Printers	22	Tanners	9
Tobacconists	37	Shoemakers	19	Bakers	7
Watchmakers	37	Glaziers	18	Butchers	7
Stonecutters	36	Hatters	16	Charcoal-burners	2
Glassworkers	35	Carpenters	14	Miners	1

The above table has reference only to the United Kingdom, the deaths from phthisis per million inhabitants showing as follows yearly :—

England . 1850–59 2,730 | Scotland . 1876–85 2,183
,, . 1860–69 2,547 | Ireland . 1886 2,220
,, . 1870–79 2,205 | London . 1879 2,476
,, . 1886 1,718 | ,, . 1886 2,010

In Scotland the deaths yearly from phthisis average thus :—

	Per Million Persons Living			Age	Age Ratio		
	Urban	Rural	Total		Males	Females	Total
Males . .	2,680	1,970	2,370	0–20 .	16.2	16.8	16.5
Females .	2,850	1,680	2,460	20–40 .	51.4	53.6	52.5
Gen. pop.	2,760	1,820	2,420	Over 40	32.4	29.6	31.0
				Total	100.0	100.0	100.0

During the years 1830–46, the mean mortality from phthisis in the British army on home service amounted to 7.8 per 1000 of strength, the highest mortality being among the Foot Guards, with whom it reached 11.3 per 1000 of strength. In the Equitable Assurance Company at that time, the average mortality between the ages of thirty and forty, from all diseases of the lungs, amounted to 3.4 per 1000. The army mortality from phthisis was, therefore, three times greater than necessary. The mortality of troops from the same cause appeared to be equally great at some foreign stations. Thus at Gibraltar 41 per cent. of the total deaths among the troops were caused by phthisis in the years 1837–46, while in the year 1875 only 23 per cent. of the deaths were due to this cause. At Jamaica the deaths from phthisis in the years 1817–36 amounted to 7.5 per 1000 of strength, while in 1859–66 the mortality from this cause had fallen to 1.4 per 1000 of strength. In Trinidad, lung disease killed on an average 11.5 per 1000 of strength between 1817 and 1836. Among the black troops at Sierra Leone phthisis appears to be the most fatal disorder. In ten years, 1861–70, the deaths were 22.5 per 1000 of strength, and of these phthisis caused one-third. In the twenty years 1817–36, the deaths in Canada from phthisis were 4.2 per 1000 of strength, whereas in 1859–65 they were but 1.6 per 1000. In India the annual ratio of deaths and invalided from phthisis were for the years 1863–70 as follows :—

	Died per 1000	Invalided per 1000
Bengal	1.7	3.2
Bombay	1.4	3.4
Madras	1.4	4.2

Deaths from phthisis in the Royal Navy average 2.6 per 1000 yearly, which is attributed to the foulness of the air.

The deaths and invalided from phthisis in the British army at home in the years 1864–70 were per 1000 men yearly thus :—

	Deaths	Invalided
Household cavalry . . .	3.8	8.2
Cavalry of line . . .	1.4	4.0
Foot guards	2.3	9.5
Infantry of line . . .	2.1	5.5

Among the causes of phthisis the most potent is overcrowding. At the ill-ventilated Leopoldstadt prison of Vienna in 1843–47 no fewer than 51 per 1000 deaths were from phthisis. At the well-ventilated House of

Correction in the same city, in the years 1850–54, the deaths from phthisis were only 8 per 1000.

Among British garrisons abroad 12 per 1000 in Ceylon are attacked yearly with phthisis, 12 in the Anglo-Indian army, 3 among Sepoys, 6 at Yokohama, and 15 at Hong-Kong. Among hospital patients in Tasmania 7 per cent. suffered from this disease, and in the French hospital at Senegal 8 per cent.

Plague.—Milroy gives a list of 196 of the most destructive plagues since the year 1500, viz. :—

	1501–1600	1601–1700	1701–1800	1801–1841
England	15	12	0	0
France	14	11	1	0
Germany	12	19	4	1
Low Countries . .	2	14	0	0
Russia and Scandinavia .	2	7	4	2
Italy and Levant . .	26	15	12	11
Spain	5	3	3	1
Total . .	76	81	24	15

The most terrible, however, which is recorded was that commonly known as the Black Death, which came from Persia into Europe in 1346. It was preceded by myriads of locusts, which filled the wells and poisoned the water in the countries east of the Caspian Sea. At Bagdad 500,000 persons died in 90 days; at Cairo the mortality reached 10,000 in 24 hours. In Europe it lasted four years, and was supposed to have carried off 24,000,000 persons, more than 30,000 towns and villages being depopulated. So late as 1350 ships were met at sea with all dead on board. Among the cities which suffered most were :—

Avignon . . 60,000 | Paris . . . 50,000
Dublin . . 14,000 | Parma . . . 40,000
Florence . . 100,000 | Siena . . . 70,000
Genoa . . 40,000 | Strasburg . . 26,000
London . . 100,000 | Valencia . . 100,000
Marseilles . 56,000 | Venice . . . 70,000
Naples . . 60,000 | Vienna . . . 40,000
Norwich . . 50,000

Since the beginning of the seventeenth century the worst plagues have been :—

Date	Place	Deaths	Weeks	Deaths per Week
1656	Naples . .	380,000	28	13,400
1665	London . .	68,800	33	2,100
1720	Marseilles .	39,100	36	1,100
1771	Moscow . .	87,800	32	2,700
1778	Constantinople	170,000	18	9,500
1798	Cairo . . .	88,000	25	3,500
1812	Constantinople	144,000	13	11,100
1834	Cairo . . .	57,000	18	3,200
1835	Alexandria .	14,900	17	900
1871	Buenos Ayres	26,300	11	2,400

The relative mortality in certain plagues was as follows :—

Date	Place	Died, per Cent.	Recovered, per Cent.	Authority
1798	Cairo . . .	67	33	Genettes
1798	Aboukir . .	25	75	M'Grigor
1813	Malta . . .	50	50	Greaves
1815	Corfu . . .	91	9	White
1834	Cairo . . .	29	71	Gaetani
1835	Alexandria .	35	65	Clot Bey
1871	Buenos Ayres	40	60	Bosch

Pneumonia.—In 10,000 deaths there were of this disease :—

In	In	In
Amsterdam . 570	Buenos Ayres 400	Ireland . . 220
Athens . . 856	Copenhagen . 710	London . . 530
Bombay . . 26	Edinburgh . 270	Paris . . . 680
Bordeaux . . 400	England . . 450	Scotland . . 410
Brussels . . 430	Frankfort . . 400	Valparaiso 1,890
	Glasgow . . 490	

Puerperal Fever.—In 10,000 deaths there were of this disease :—

In	In	In
Amsterdam . 53	Copenhagen . 160	London. . . 25
Athens . . 110	England . . 37	New York . . 56
Austria . . 40	France. . . 100	St. Petersburg 74
Bâle . . . 90	Geneva . . 95	Scotland . . 50
Berne . . . 80	Holland . . 50	Switzerland . 77
Brussels . . 210	Iceland . . 70	United States. 40
Canada . . 140	Ireland . . 52	

At the lying-in hospital of St. Petersburg in 32 years down to 1871 there were 39,200 accouchements, and 1960 mothers died—just 5 per cent. The death-rate per 1000 accouchements according to months was :—

January. . . 54	May 55	September . 34
February . . 56	June 68	October. . . 35
March . . . 60	July 52	November . . 40
April. . . . 59	August . . . 29	December . . 55

The quarter ending June showed the highest rate, 61, and that ending September only 38.

In Prussia during 25 years down to 1866 it was found that 33 per 1000 of married women died of puerperal fever. Lefort states that the average in lying-in hospitals in Europe is 34 per 1000, and only 5 per 1000 in women confined at home.

Rheumatism.—In 10,000 deaths there were of this disease :—

In	In	In
Bordeaux . . 50	Germany . . 25	Paris. . . . 29
Canada . . . 70	Glasgow . . 21	Scotland . . 38
Copenhagen . 35	Iceland . . 80	Switzerland . 25
Denmark . . 70	Ireland . . 56	United States. 59
Edinburgh . . 23	Italy . . . 21	Upsala . . . 40
England . . 50	Lisbon . . 43	Valparaiso . 44
Frankfort . . 46	London . . . 55	

Of 1000 cases of sickness the ratio of rheumatism is as follows :—

In	In	In
Algiers . . 12	Hong-Kong . 30	New Zealand . 32
Amoy . . . 39	India . . . 50	Riga 84
Bombay . . 30	Lisbon . . . 40	Sandwich Isds. 41
Buda-Pesth . 65	London. . . 60	Shanghai . . 92
Burmah . . 48	Lyons . . . 98	Singapore . . 60
Cape . . . 30	Madras . . . 60	Sweden. . . 77
Corfu . . . 35	Malaga . . . 51	Switzerland . 30
England . . 100	Mauritius . . 31	Tahiti . . . 41
Gibraltar . . 47	Melbourne . . 77	Yokohama . . 65
	Natal . . . 30	

During the war of 1861–63 in the United States the Federals had 5,825,000 men under colours, and of these 254,700 were sent to hospital for rheumatism, being 44 per 1000. The French army at home has usually 30 rheumatic patients yearly per 1000 men, but in Algeria only 12; the garrison at Rome also averaged 12. In 1873 the deaths from this disease in the French army were 3 per 100,000 men.

In 14 years ending 1874 the ratio of British seamen on home and foreign stations attacked yearly with rheumatism was :—

Per 1000 Seamen

U. Kingdom . 56	China . . . 84	Australia . . 89
West Indies . 71	Mediterranean 85	Pacific. . . 97
South America 75	East Indies . 87	Cape . . . 104

The general average for the said period was 84.

The following table shows the distribution of rheumatism according to months, taking the year as 1200 :—

	Cases		Deaths		Deaths to 1000 Cases	Relative Malignancy
	London	Paris	In France	At Paris		
January . . .	96	83	107	109	25	150
February . . .	115	92	105	79	12	72
March . . .	85	92	105	95	30	180
April . . .	114	109	105	102	7	40
May	90	104	97	103	21	128
June	118	112	92	94	6	37
July	102	120	92	121	22	130
August . . .	77	102	100	97	15	90
September . .	91	92	100	110	23	135
October . .	115	97	100	107	16	94
November . .	95	97	95	85	16	94
December . .	102	100	93	98	8	50
Year . . .	1,200	1,200	1,200	1,200	17	100

The ratio of age in deaths from rheumatism at Paris (1865–74) was as follows :—

In 1000 Deaths from Rheumatism

Age		Age		Age	
Under 5 . .	11	15–25 . . .	115	40–60 . . .	331
5–15 . . .	58	25–40 . . .	279	Over 60 . .	206

There were 102 males to 100 female deaths.

Scarlatina. — In 10,000 deaths there were of this disease :—

In	In	In
Amsterdam . 50	England . . 350	Rome . . . 10
Bavaria . . 236	Germany . . 160	Switzerland . 430
Berlin . . . 60	Holland . . 40	Scotland . . 180
Brussels . . 140	Ireland . . 290	St. Petersburg 90
Copenhagen . 240	London . . 480	U. States . . 220
	Paris . . . 60	

The prevalence of this disease in Sweden, Norway, and Saxony, according to months (taking the year as 1200), is shown thus :—

Month				Sweden	Norway	Saxony
January	.	.	.	106	122	116
February	.	.	.	99	110	102
March	.	.	.	93	103	78
April	.	.	.	95	92	63
May	.	.	.	91	90	59
June	.	.	.	90	85	59
July	.	.	.	81	80	68
August	.	.	.	80	76	84
September	.	.	.	91	72	113
October	.	.	.	118	100	155
November	.	.	.	136	137	151
December	.	.	.	120	133	152

Sciatica.—Arnoldi gives the age of 1000 patients of this disease :—

Under 10 . 36	30–40 . . . 218	60–70 . . . 115
10–20 . . . 101	40–50 . . . 199	Over 70 . . 28
20–30 . . . 145	50–60 . . . 158	

Scrofula.—In 10,000 deaths there were of this disease :—

In	In	In
Amsterdam . 140	England . . 56	New York . 83
Berlin . . . 100	France . . . 130	Norway . . 80
Bordeaux . . 67	Glasgow . . 60	Paris . . . 47
Brussels . . 90	Ireland . . 110	Russia . . . 180
Canada . . 15	Lisbon . . 110	St. Petersburg 260
Copenhagen . 70	London . . 60	Scotland . . 150
Dresden . . 90	Lyons . . . 60	Turin . . . 30
Edinburgh . 95	Munich . . 33	United States 70

In German cities 50 per cent. of foundlings die of scrofula. In Buda-Pesth 2½ per cent. of hospital patients suffer from this disease. In Italy 7 per 1000 of conscripts are rejected for it.

Scurvy.—In the British navy the returns were :—

Period	Cases Yearly	Per 10,000 Seamen
1856–65	28	6
1806–75	4	1

In the year 1820 the garrison of St. Peters, Iowa, 1000 men, had 500 cases, of whom 168 died. The United States army in 20 years ending 1859 had 26 cases yearly per 1000 men, but only 1 per cent. of the cases proved fatal. The French army in the Crimea had 23,400 cases and 639 deaths, say 3 per cent. In the hospital at Constantinople, 1855–56, there were 25,200 cases and 2916 deaths, or nearly 12 per cent. In the Franco-German war the French prisoners at Ingolstadt had 16 cases per 1000. In Lord Anson's expedition, 1740, the *Centurion* lost 58 per cent. and the *Gloucester* 78 per cent. of her crew from scurvy. Admiral Martin lost 10 per cent. of his men in 1746.

Small-Pox.—In 10,000 deaths there were of this disease :—

In		In		In	
Amsterdam	100	Denmark	70	Marseilles	152
Austria	250	England	130	Paris	80
Baltimore	620	Finland	60	Rome	290
Berlin	4	Germany	8	St. Petersburg	40
Brussels	150	Glasgow	8	Scotland	14
Buda-Pesth	140	Ireland	41	Sweden	160
Canada	55	Italy	60	Switzerland	54
Copenhagen	70	London	106	Vienna	40

The months in which it is most prevalent are shown in the following table, taking the year as 1200 :—

Month	Sweden	Norway	Bavaria	London
January	120	144	120	50
February	130	161	152	23
March	129	157	162	45
April	156	142	165	38
May	152	172	142	65
June	128	133	110	57
July	91	78	70	68
August	52	46	52	80
September	41	34	46	93
October	43	27	45	153
November	68	40	58	225
December	90	66	78	303
Year	1,200	1,200	1,200	1,200

Deaths yearly from this disease in various European armies averaged thus :—

	Per 100,000 Men	
	1872–75	1876–81
British	8 ...	3
German	1 ...	0
French	8 ...	16
Austrian	99 ...	18

In Germany the deaths from this disease averaged in 10,000 deaths as follows :—

1816–70	101
1871–74	555
1875–82	8

In 1874 a law was passed making re-vaccination compulsory on all persons in Germany over twelve years of age. The ratio in 10,000 deaths for Berlin and London was as follows :—

	1870–79	1880–83
Berlin	324 ...	4
London	230 ...	106

In Austria the ratio per 10,000 deaths showed :—

1872–76	560
1877–81	250

French physicians have instituted a comparison between Paris and Rio Janeiro touching this disease at various seasons and temperatures, viz. :—

Quarter ending	Mean Temperature, Fahrenheit		Ratio of Year's Death	
	Paris	Rio Janeiro	Paris	Rio Janeiro
31st March	38	77	24.2	12.6
30th June	50	72	22.8	15.6
30th September	65	70	16.5	37.7
31st December	52	76	36.5	34.1
Year	51	74	100.0	100.0

In the hot season at both places the deaths are fewer. The ratio of ages showed thus :—

Age	Deaths	
	Paris	Rio Janeiro
Under 7	30.3	28.4
7–25	19.6	34.2
25–40	34.2	26.9
Over 40	15.9	10.5
	100.0	100.0

The deaths per million inhabitants in the United Kingdom yearly averaged thus :—

England		London		Scotland		Ireland	
Date	Deaths	Date	Deaths	Date	Deaths	Date	Deaths
...	...	1660–80	4,170	...	...	...	...
1760–1800	3,000	1760–90	2,260	...	...	...	...
1840–54	430	1840–60	408	...	...	1844	403
1871–73	178	1871–73	1,040	1864	305	1864–74	108
1881	100	1881	640	1874–82	28	1875–82	82

In the epidemic of 1861 the deaths in England were per million: army, 455; civilians, 928; London, 2420. In that of 1881 the returns showed deaths per million inhabitants as follows :—

	Vaccinated	Unvaccinated	Difference
London	90 ...	3,350 ...	35 to 1
England	98 ...	4,380 ...	44 to 1

In 10,000 deaths in London at the following periods those from small-pox were as follows :—

Period	Per 10,000
1622–1700	525
1701–1800	808
1801–30	480
1841–60	150
1861–70	105
1871–81	202

In the epidemic at Leipzig in 1871 the death-rate was 12,700 per million inhabitants, 70 per cent. of whom were unvaccinated. The following table shows the relative mortality as affected by vaccination :—

	Vaccinated, Per Cent.	Unvaccinated, Per Cent.
London . . .	15	45
Montreal . . .	16	54
Boston . . .	15	50
Philadelphia . .	17	64

During the Franco-German war the Germans lost only 263 men from this disease, the French 23,499, the former having been re-vaccinated in barracks. In the war in Paraguay, the Brazilians lost 43,000 men from malignant or black small-pox, that is, 35 per cent. of their army, nine cases in ten proving fatal.

In ten years ending 1869 the average number of vaccinations in France was 587,000 per annum, leaving 405,000 children born yearly over that number unvaccinated.

The cases of small-pox averaged 18,100 yearly, and deaths 2490, or 14 per cent. Deaths in Paris from small-pox averaged yearly as follows :—

Period	Deaths Yearly	Per 10,000 Deaths
1821–30	585	180
1831–40	465	160
1841–50	319	90
1851–60	426	85
1861–70	1,512	310
1871–80	695	140

In the ratio of sexes, 130 males died of this disease to 100 females. Swedish statistics compare vaccinations and deaths from small-pox as follows :—

Period	Vaccinations per 1000 Births	Small-Pox, Deaths Yearly per Million Inhab.
1800–9 . . .	280	560
1810–19 . . .	520	190
1820–29 . . .	680	132
1830–39 . . .	730	270
1840–49 . . .	720	43
1850–55 . . .	810	160
1861–75 . . .	...	110

Between 1770 and 1799, when vaccination was not in use, the deaths in Sweden yearly from small-pox averaged 2100 per million inhabitants.

In Norway vaccination is not compulsory, but persons unvaccinated are not allowed to vote at elections. In Austria the number of vaccinations yearly shows :—

Year	Vaccinations	Per 1000 Births	
		Vaccinated	Not Vaccinated
1882	675,000	810	190
1884	686,000	799	201
1886	692,000	803	197

In Japan, in 1880, the number of vaccinations was 1,459,000, of which 3 per cent. were unsuccessful.

This disease was known in Ireland in 1241, and in Denmark in 1527.

Sunstroke.—In 10,000 deaths in England two are usually from this cause, the annual average of such deaths showing thus :—

	1863–70	1871–78
Men	57	88
Women	9	23
Total .	66	111

This disease is most prevalent at Bassorah in the Persian Gulf, and also in the United States. In 1874 the steamer *Liverpool* in the Persian Gulf lost in one day 3 officers and 21 seamen by sunstroke.

Syphilis.—In 10,000 deaths there were of this disease—

In		In		In	
Amsterdam .	18	London . .	68	Portugal . .	80
Bordeaux . .	42	Louisiana . .	23	Riga . . .	36
Brussels . .	42	Lyons . . .	9	St. Petersburg	20
Copenhagen .	34	Massachusetts	12	Scotland . .	17
Edinburgh .	55	Milan . .	5	Shanghai . .	50
England . .	40	New York .	40	Strasburg . .	14
Genoa . . .	20	Norway . .	8	Sweden . .	10
Ireland . .	20	Pennsylvania.	9	Turin . . .	30

This disease was unknown in Norway till 1710, in Italy till 1786, in Canada till 1790, and in Tasmania till 1821. The percentage of patients in various hospitals found to be suffering from it was :—

Hospital	Men, Per Cent.	Women, Per Cent.
Berlin	20	25
Vienna	15	...
Stettin	10	51
Brunswick	33	85

In Holland 10 per cent. of men in hospital, in Strasburg 38 per cent., in Malaga 18, in Gibraltar 8, in Amoy 43, in Dantzig 10, in Bremen 7 per cent. suffered from syphilis. In Hanover 20, and in Magdeburg 30 per cent. of the women in hospital. The prevalence of this disease in 1000 soldiers was as follows :—

Prussia . .	54	France . .	102	Canada . .	160
Austria . .	63	Holland . .	105	Bengal . . .	167
Russia . .	65	Australia . .	110	Gibraltar . .	187
Italy . . .	71	Mauritius . .	122	Cape . . .	303
Malta . . .	81	Jamaica . .	123	Algeria . .	309
Belgium . .	90	Spain . . .	115	Java . . .	333
Great Britain	101	Portugal . .	135		

In Paris 23 per cent. of foundlings, and in Moscow and St. Petersburg 25 per cent. are infected with this disease. In French military hospitals 19 per cent. are syphilitic cases, in Belgian 7, in British 29.

Tetanus.—The ratio of wounded soldiers who got tetanus in various campaigns was as follows :—

Date	Army	Per 1000 Wounded
1782	British in India	25
1811	,, Spain	13
1855	,, Crimea	2
1798	French in Egypt	35
1836	,, Algeria	57
1855	,, Crimea	3
1859	,, Italy	7
1870	,, Strasburg	5
1864	German in Denmark	7
1866	Hanoverian at Sadowa	12
1870	German at Strasburg	9
1871	,, Paris	10
1859	Spanish in Morocco	18
1862	War of United States, Northerns	2

Death-rate in cases of tetanus is stated thus :—

Date	Per Cent.	Observer
1793 . . .	100	Heurteloup
1834 . . .	96	Curling
1825–50 . . .	86	Guy's Hospital
1855 . . .	91	English in Crimea
1859 . . .	92	French in Italy
1861–63 . . .	90	Federals in United States
1870 . . .	70	Glasgow Hospital
1877 . . .	85	Richter

In the American War, 1863, the rate was 87 per cent. when the wound was in the arm, 90 in the leg, 91 in the body, and 95 in the head or neck.

The *Lancet* (1870) gives the following ratio of mortality as to the number of days elapsing before tetanus pronounced itself :—

Days	Ratio of Cases	Death-Rate	Recovered
		Per Cent.	Per Cent.
Before 10 . . .	47.5	78	22
10 to 22 . . .	45.0	52	48
Over 22 . . .	7.5	48	52

Typhoid Fever.—In 10,000 deaths there were of typhoid fever :—

In		In		In	
Algiers	. . 340	England .	. 210	Naples	. . 300
Amsterdam	. 460	France.	. . 720	New York	. 350
Antwerp	. . 290	Frankfort .	. 420	Norway .	. 990
Astrakan	. . 870	Geneva	. . 350	Palermo .	. 890
Athens.	. . 475	Germany .	. 450	Paris . .	. 680
Belgium .	. 460	Glasgow .	. 810	Rome . .	. 230
Berlin . .	. 320	Ireland .	. 210	Russia. .	. 480
Brussels	. 220	Italy . .	. 290	Scotland .	. 235
Catania	. 840	Liege . .	. 270	Strasburg .	. 230
Christiania	. 630	London .	. 240	Sweden	. 203
Copenhagen .	700	Lubeck .	. 370	Turin . .	. 460
Denmark .	. 400	Lyons . .	. 270	Vienna .	. 560
Edinburgh	. 460	Milan . .	. 320	United States	450
		Munich .	. 450		

In Paris hospitals 21 per cent. of typhoid cases prove fatal. In St. Petersburg of 10,000 males between 15 and 20 years of age 38 die yearly of typhoid, and of women of the same age 17.

Wolfshugal states the yearly deaths from typhoid per 100,000 inhabitants as follows :—

Amsterdam .	39	Hamburg. .	54	New York .	35
Berlin . . .	96	Leipzig . .	300	Paris . . .	50
Birmingham .	54	Lille . . .	40	Pesth . . .	96
Bristol . . .	5	Liverpool .	92	Rome . . .	91
Christiania .	7	London . .	37	Rotterdam .	17
Dublin. . .	79	Manchester .	58	Strasburg . .	33
Frankfort . .	42	Metz . . .	48	Turin . .	143
Genoa . . .	63	Milan . .	95	Venice . . .	70
Hague . . .	38	Munich . .	118	Vienna . .	59
		Naples . .	128		

The ratio of sickness shows 22 typhoid patients in 1000 sick at Bremen, 30 at Stuttgart, 31 at Hamburg and Munich, 34 at Breslau, and 54 at Vienna, during ten years ending 1855.

Deaths from typhoid in the French army average 18 per 10,000 yearly, in the Bavarian 28, and in the garrison of Munich 84. The rate of deaths yearly from this disease in the French army, according to years of military service, was thus :—

Years of Service	Deaths per 10,000 Men	Years of Service	Deaths per 10,000 Men
1st . . .	44	6–7	12
2–3 . . .	42	8–9	5
4–5 . . .	19	10 or over	4

Deaths from typhoid and other fevers, according to months, taking the year as 1200, occurred thus :—

	Typhoid						Other Fevers		London	Ague
	London	Holland	Saxony	Switzerland	Norway	Belgium	W. Africa	Mauritius	Typhus	Algeria
January . . .	87	60	102	106	150	62	118	20	135	119
February . . .	62	30	95	83	103	95	129	65	108	78
March . . .	58	54	87	73	64	106	98	208	129	77
April . . .	41	55	81	67	43	99	105	340	133	50
May . . .	48	54	80	85	38	72	110	275	133	42
June . . .	70	55	79	92	32	62	107	111	110	60
July . . .	97	36	92	98	57	69	102	71	92	101
August . . .	150	78	121	107	95	128	85	34	81	121
September . . .	171	158	131	131	117	128	83	25	68	126
October . . .	165	240	126	126	116	167	78	15	72	152
November . . .	151	240	105	130	209	113	84	16	71	146
December . . .	100	140	101	102	176	99	101	20	68	128
Year . . .	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200

Typhus.—In 10,000 deaths there were of this disease in England 30, Scotland 47, Holland 21, Amsterdam 23. The rate of mortality among persons attacked is 20 per cent. in England. An epidemic of typhus occurred in Ireland in 1817–19, when 800,000 persons were attacked, of whom 45,000 died ; a second was in 1847, caused by famine, and was still more fatal. Emigrants conveyed it to Quebec, where 8600 sick were at one time under treatment in 1847. The hospitals of Russia had 57,000 typhus patients in 1857. Deaths from typhus in Vienna averaged 734 per annum in the years 1865–71, but since the sanitary improvements of 1872 the average has been only 291 per annum.

Whooping-Cough.—In 10,000 deaths there were of this disease :—

In		In		In	
Belgium .	. 280	Edinburgh .	. 360	London .	. 370
Brussels .	. 70	England .	. 250	Norway .	. 190
Christiania .	100	Glasgow .	. 610	Scotland .	. 220
Copenhagen .	160	Holland .	. 180	Sweden .	. 190
Denmark .	. 160	Ireland .	. 250	U. States .	. 148
		Italy . .	. 50		

Of 100 cases in Belgium 64 occur under twelve months, 32 between that age and five years, and four over the age of five years.

Yellow Fever.—It made its first appearance at Rio Janeiro in December 1849. The official record of deaths from 1851 to 1860 averaged 910 per annum, and in 1870–74 they were 1245 per annum. This is supposed to represent one-fourth of the real number. An outbreak occurred at Buenos Ayres in January 1871, which carried off 26,200 persons, or nearly 10 per cent. of the population.

At Vera Cruz the deaths from this disease, according to months, taking the year as 1200, stand thus :—

January	. .	. 26	July . .	. 125
February	. .	. 42	August . .	. 109
March	. .	. 90	September .	. 109
	First quarter	. 158	Third quarter	. 343
April .	. .	. 125	October . .	. 84
May .	. .	. 195	November .	. 42
June .	. .	. 212	December .	. 41
	Second quarter	. 532	Fourth quarter	167

At Rio Janeiro, where the seasons are reversed, the distribution is :—

January	.	. 112	July . . .	. 52
February	.	. 140	August . .	. 36
March .	.	. 214	September .	. 24
First quarter	. 466		Third quarter	. 112
April	. .	. 243	October . .	. 23
May	. .	. 171	November .	. 26
June	. .	. 110	December .	. 49
Second quarter	. 524		Fourth quarter	. 98

ENGLAND AND WALES

The following table shows the deaths from various diseases in England and Wales since 1861 :—

	Deaths Yearly per Million Inhabitants				Ratio in 10,000 Deaths in 1886
	1861–70	1871–80	1881–85	1886	
Cancer . . .	386	455	545	583	302
Cholera . .	107	25	16	19	10
Convulsions .	1,231	1,041	844	821	426
Croup . . .	248	169	162	132	69
Diabetes . .	30	38	51	59	30
Diarrhœa . .	968	916	652	888	461
Diphtheria .	188	121	156	147	76
Erysipelas .	85	93	83	55	28
Intemperance .	38	40	48	49	26
Liver . . .	417	425	370	335	175
Measles . .	443	379	410	431	224
Nervous system	1,575	1,760	1,800	1,835	955
Old age . .	1,315	1,140	1,009	1,021	530
Phthisis . .	2,487	2,130	1,820	1,718	891
Puerperal . .	56	74	92	75	39
Respiratory .	3,357	3,742	3,580	3,595	1,870
Rheumatism .	112	133	132	91	47
Scarlatina . .	971	720	434	215	112
Small-pox . .	156	244	78	10	5
Typhoid . .	885	485	272	213	111
Venereal . .	84	94	93	91	47
Violent . . .	771	735	663	626	324
Whoop.-cough .	530	513	457	464	241
Various. . .	6,063	5,906	5,533	5,805	3,001
Total . .	22,503	21,378	19,300	19,278	10,000

The returns may be summed up thus :—

Disease	Deaths per Million Inhabitants				No. of Deaths in 1886
	1871–80	1881–82	1883–85	1886	
Zymotic . .	3,724	2,874	2,747	2,648	73,747
Constitutional	3,594	3,627	3,362	3,330	92,751
Local . . .	9,920	9,470	9,780	9,915	276,302
Various . .	3,404	2,566	2,814	2,759	77,032
Violent . . .	736	683	650	626	17,444
Total .	21,378	19,220	19,353	19,278	537,276

The bills of mortality in London show as follows :—

	Deaths per Million Inhabitants		
	1859	1869	1879
Bronchitis . .	2,310	2,995	3,622
Phthisis . . .	2,850	2,756	2,476
Diarrhœa . .	1,210	1,061	495
Fever . . .	657	558	249
Measles . . .	488	455	670
Scarlatina . .	1,280	1,325	719
Small-pox .	425	86	122
Violent deaths .	752	747	774
Whooping-cough .	639	1,178	792
Total .	...	...	...

Dr. Farr stated that if zymotic or preventible diseases were unknown in England the span of life would be six years longer. There is some improvement in this direction, as shown by zymotic deaths since 1838, viz.:—

Period	Annual Average	Per Cent. of Deaths
1838–40	61,807	17.7
1848–50	88,924	22.1
1858–60	79,930	17.6
1867–68	87,114	18.2
1871–80	90,620	17.4
1881–85	75,040	14.5
1886	73,747	13.7

The following table shows the ratio of deaths in 1886 according to sex :—

	Per Million Inhabitants			In 10,000 Deaths
	Male	Female	Total	
Apoplexy	561	592	577	300
Asthma	106	70	87	45
Brain	366	303	334	173
Bright's disease . .	273	219	245	128
Bronchitis . . .	2,247	2,164	2,208	1,143
Cancer	424	733	583	302
Convulsions . . .	951	698	821	426
Croup	148	117	132	69
Diarrhœa . . .	954	823	888	461
Diphtheria . . .	141	152	147	76
Drink	65	35	49	26
Dropsy	10	14	12	6
Epilepsy	123	105	114	59
Erysipelas . . .	59	50	55	29
Gout	31	7	19	10
Heart	277	289	283	147
Hydrophobia . . .	2	...	1	...
Liver	354	317	335	174
Measles	449	414	431	224
Old age	906	1,129	1,021	530
Phthisis	1,846	1,596	1,718	891
Pneumonia . . .	1,187	839	1,008	523
Puerperal fever . .	...	145	75	39
Rheumatism . .	28	34	31	16
Scarlatina . . .	221	209	215	112
Small-pox . . .	14	6	10	5
Syphilis	86	74	80	42
Typhoid	197	167	182	95
Typhus	10	7	9	5
Whooping-cough . .	435	492	464	241
Various	7,870	6,470	7,144	3,703
Total . .	20,341	18,270	19,278	10,000

It will be observed that phthisis and pneumonia are more fatal among males than females, but cancer and apoplexy are more frequent among females.

	Actual Number of Deaths in 1886		
	Males	Females	Total
Measles . .	1,088	1,003	2,091
Scarlatina .	368	362	730
Typhoid .	321	297	618
Whooping-cough	1,289	1,582	2,871
Diphtheria .	427	424	851
Diarrhœa .	2,074	1,922	3,996
Phthisis .	4,884	3,525	8,409
Cancer . .	967	1,721	2,688
Various . .	30,739	29,551	60,291
. . .	42,157	40,388	82,545

SCOTLAND

The causes of death during ten years ending 1885 were :—

Age	Phthisis	Bronchitis	Pneumonia	Diarrhœa	Bright's	Apoplexy	Cancer	Total from all Causes
	Per Million Males of each Age							
0-5	957	8,263	3,108	2,713	134	362	27	49,170
5-10	615	289	293	74	108	74	8	6,090
10-15	856	93	133	31	67	41	7	4,100
15-20	2,552	104	276	31	95	47	25	5,650
20-30	3,624	150	463	42	119	65	53	7,460
30-40	3,308	417	794	69	202	209	144	9,760
40-50	2,741	1,316	1,346	113	308	488	554	14,980
50-60	2,415	3,286	1,935	262	481	1,278	1,401	24,370
60-70	1,925	6,258	2,817	720	756	3,031	2,624	43,930
70-80	1,060	11,418	3,387	1,867	1,022	6,243	3,745	90,770
80-90	445	19,011	4,080	3,413	1,190	9,305	3,835	192,420
90-100	177	24,113	4,078	5,142	887	7,447	3,901	407,350
General average	2,093	2,253	1,158	535	213	538	384	19,050
	Per Million Females of each Age							
0-5	958	7,118	2,567	2,361	92	285	19	43,270
5-10	764	335	282	72	72	66	9	6,100
10-15	1,459	114	132	37	67	41	13	4,360
15-20	3,434	115	203	28	73	42	21	6,170
20-30	3,928	175	254	48	127	66	64	7,650
30-40	3,592	431	433	81	190	146	381	9,780
40-50	2,559	1,121	564	128	233	457	1,158	11,980
50-60	1,694	2,873	874	289	319	1,182	2,162	20,030
60-70	1,192	6,119	1,484	771	338	2,312	3,098	38,760
70-80	707	12,366	2,489	1,977	531	4,462	3,844	79,150
80-90	317	20,072	2,878	3,649	447	6,948	3,959	176,410
90-100	171	26,199	3,425	5,479	171	6,678	2,911	354,760
General average	2,273	2,213	786	498	164	512	637	18,260

The following classification for 1886 distinguishes urban and rural :—

Disease	Cities		Towns		Rural		All Scotland	
	Males	Females	Males	Females	Males	Females	Males	Females
Zymotic	266	259	197	230	125	140	203	211
Constitutional	417	434	313	371	257	304	342	380
Nervous	284	244	246	214	193	185	248	220
Respiratory	495	440	363	291	287	239	393	342
Digestive	152	138	142	134	122	119	139	131
Violent deaths	100	39	92	32	87	30	93	34
Various	471	464	481	519	504	548	487	508
Total	2,185	2,018	1,834	1,791	1,575	1,565	1,905	1,826
Small-pox	1	1	1	1	1	1	1	1
Measles	25	22	22	22	9	8	18	17
Scarlatina	42	35	24	29	15	15	28	26
Whooping-cough	69	76	33	41	19	20	45	51
Diphtheria	18	15	15	15	13	12	16	14
Typhoid	15	16	22	25	18	24	18	20
Diarrhœa	61	54	53	59	28	25	49	46
Erysipelas	8	7	7	7	8	7	8	7
Puerperal	...	13	...	12	...	15	...	13
Rheumatism	10	13	10	14	9	12	10	13
Cancer	44	72	43	72	42	81	43	74
Phthisis	245	247	172	197	147	158	197	210
Scrofula	24	19	18	18	12	11	18	16
Old age	46	90	87	133	153	228	97	150
Apoplexy	55	60	56	59	51	57	53	59
Paralysis	54	53	53	50	55	51	53	51
Convulsions	44	32	27	21	18	15	32	24
Croup	19	18	19	15	17	10	19	15
Bronchitis	253	261	183	177	146	145	200	205
Pneumonia	169	122	109	65	78	52	123	85
Various	983	792	880	759	746	618	877	729
Total	2,185	2,018	1,834	1,791	1,575	1,565	1,905	1,826

Deaths per 100,000 Persons Living

The following table was published in 1840, showing the distribution of diseases according to months :—

LONDON IN 1840

	Small-pox	Measles	Scarlatina	Whoop-ing-Cough	Typhus	Apoplexy	Pneu-monia	Phthisis	General Mortality
January . .	50	85	112	134	113	123	115	104	108
February . .	23	55	103	95	95	108	72	93	89
March . . .	45	74	91	109	101	104	105	108	105
April . . .	38	80	97	118	107	95	107	102	99
May . . .	65	82	97	99	113	96	94	100	92
June . . .	57	125	128	107	87	76	71	98	89
July . . .	68	117	79	82	87	89	70	105	96
August . .	80	108	123	74	95	88	59	102	97
September .	93	96	109	65	102	98	62	91	93
October . .	153	100	116	76	96	89	107	93	97
November .	225	119	86	81	100	120	140	92	103
December .	303	159	59	160	104	114	198	112	132
Year .	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200

IRELAND

Deaths in 1886 were as follows :—

Disease	Number of Deaths			Ratio in 10,000		
	Males	Females	Total	Males	Females	Total
Zymotic	3,079	3,579	6,658	708	817	763
Constitutional	7,883	8,900	16,783	1,811	2,033	1,922
Local	19,221	17,445	36,666	4,414	3,984	4,202
Violent deaths	1,293	567	1,860	297	130	213
Various	12,017	13,308	25,325	2,770	3,036	2,900
Total . .	43,493	43,799	87,292	10,000	10,000	10,000

The causes of death in 1886 were as follows :—

Disease	Number of Deaths			Ratio in 10,000 Deaths		
	Males	Females	Total	Males	Females	Total
Phthisis	4,993	5,791	10,694	1,127	1,323	1,225
Bronchitis	4,763	5,175	9,938	1,095	1,182	1,140
Pneumonia	1,793	1,014	2,807	412	232	322
Convulsions	1,775	1,416	3,191	408	323	365
Diarrhœa	734	747	1,481	169	170	170
Whooping-cough	541	678	1,219	124	155	140
Cancer	894	1,135	2,029	205	259	232
Old age	8,152	9,360	17,512	1,874	2,136	2,005
Small-pox	...	2	2	...	...	...
Measles	137	147	284	31	33	32
Scarlatina	401	449	850	92	102	97
Typhus	204	190	394	46	43	45
Typhoid	385	387	772	89	86	87
Diphtheria	156	180	336	34	41	38
Erysipelas	127	105	232	29	23	26
Puerperal	...	332	332	...	75	38
Rheumatism	216	282	498	50	64	57
Apoplexy	607	521	1,128	140	120	130
Croup	410	352	762	95	80	88
Various	17,295	15,536	32,831	3,980	3,553	3,763
Total . .	43,493	43,799	87,292	10,000	10,000	10,000

Deaths from violence were 1860, say 207 per 10,000 deaths, or 380 per million of population.

The average of deaths yearly from zymotic diseases for ten years, 1877–86, was as follows :—

Per 100,000 Inhabitants

Small-pox . 223 | Diphtheria . 315 | Erysipelas . 265
Measles . 1,055 | Whooping- } 1,360 | Influenza . 58
Scarlatina . 1,404 | cough } | Diarrhœa . 1,754
 | Fever . . 2,374 |

FRANCE

In 10,000 deaths in France the following ratios occur :—

Erysipelas . . 48 | Heart . . . 290 | Apoplexy . 400
Puerperal . . 100 | Meningitis . 300 | Typhoid . 720
Scrofula . . 130 | Diphtheria . 360 | Phthisis . . 1,120

The returns of Paris hospitals in 1882 showed as follows :—

	Adults		Children		Death-Rate per Cent.	
	Admitted	Died	Admitted	Died	Adults	Children
Bronchitis	5,070	273	497	53	5.4	10.6
Croup	55	25	1,207	821	45.0	68.0
Diarrhœa and dysentery	494	49	541	212	10.0	40.0
Erysipelas	1,175	109	76	32	9.1	42.0
Fractures, &c.	6,753	286	240	1	4.3	0.4
Heart disease	2,116	659	31	11	31.0	35.0
Measles	261	3	404	111	1.1	27.5
Paralysis	421	42	...	...	10.0	...
Phthisis	6,348	3,477	163	116	55.0	71.0
Pleurisy	1,407	176	85	6	12.6	7.0
Pneumonia	2,211	722	322	151	33.0	47.0
Rheumatism	4,416	39	67	1	0.9	1.5
Scarlatina	477	29	258	31	6.2	12.0
Small-pox	1,985	395	204	50	19.9	24.5
Syphilis	3,861	18	115	26	0.5	22.5
Typhoid	3,616	823	470	83	22.8	17.5
Various	33,944	2,212	3,174	292	6.5	9.1
Total	74,610	9,337	7,854	1,997	12.5	25.5

In 10,000 deaths the various diseases stood thus :—

Bronchitis	292	Measles	103	Rheumatism	36
Croup	760	Paralysis	38	Scarlatina	54
Diarrhœa	235	Phthisis	3,233	Small-pox	401
Erysipelas	126	Pleurisy	164	Syphilis	40
Fractures	258	Pneumonia	786	Typhoid	815
Heart disease	603				

In 10,000 cases of sickness they stood thus :—

Bronchitis	682	Measles	81	Rheumatism	550
Croup	155	Paralysis	51	Scarlatina	90
Diarrhœa	127	Phthisis	798	Small-pox	268
Erysipelas	153	Pleurisy	182	Syphilis	487
Fractures	857	Pneumonia	310	Typhoid	500
Heart disease	264				

Of 10,000 deaths in the city of Paris in 1883 the ratios were :—

	Male	Female	Total
Scarlatina	15	20	17
Small-pox	78	86	81
Whooping-cough	97	146	115
Measles	170	212	185
Bronchitis	310	320	314
Diphtheria and croup	330	370	345
Typhoid	368	366	367
Violent	435	147	301
Pneumonia	710	750	725
Phthisis	2,110	1,710	1,890
Sundry	5,377	5,874	5,660
Total	10,000	10,000	10,000

The reports of reformatories for 1880 showed the ratio of inmates who were sick during the year as follows :—

Complaint	Per 1000			Deaths per 100 Cases
	Boys	Girls	General Average	
Digestive disorders	73	65	71	3
Phthisis	12	26	15	40
Scrofula	11	84	25	3
Typhoid	6	4	5	33
Various	220	48	190	3
Total	322	227	306	5

The death-rate at various seasons of pulmonary patients in the Paris hospitals was as follows :—

Quarter Ending	Per 100 Patients				
	Phthisis	Pneumonia	Bronchitis	Pleurisy	Average
March	55	40	6	16	29
June	53	27	4	13	29
September	50	25	2	9	22
December	56	39	6	13	33
Year	54	32	5	13	30

The ratio of age in the Paris hospitals in cases of certain diseases was in 1861-64 as follows :—

Age	Typhoid	Apoplexy	Aneurism	Cataract
Under 20	24.5	5.2	1.2	6.0
20-30	54.2	6.2	14.0	3.6
30-40	14.8	11.0	38.8	3.6
Over 40	6.5	77.6	46.0	86.8
	100.0	100.0	100.0	100.0

The convict settlement of Cayenne, French Guiana, in 1876-81 gave the following averages :—

	Sick per 1000 Convicts	Deaths in 100 Sick
Phthisis	14	22
Enteric fever	170	4
Anæmia	180	10
Digestive disorders	35	15
Various	681	4
Total	1,080	6

The French garrison at Senegal in 22 years ending 1873 gave the following returns :—

	Per 1000 Men		Relative Mortality
	Hospital Admissions	Deaths	
Fever	920	25	2.7
Dysentery and cholera	301	22	7.3
Syphilis	119	...	...
Sundry	479	30	6.3
Total	1,819	77	4.2

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The death-rate of the French army in the years 1872-77 showed thus :—

	Of 1000 Deaths	Deaths per 10,000 Men
Typhoid	307	33
Phthisis	290	31
Diarrhœa, &c. . .	76	8
Suicide	33	4
Various	294	31
Total . .	1,000	107

The average number invalided yearly was 50 officers per 10,000, and 220 men in the same number, being over double the death-rate.

The military hospital report in 1865 showed among 1000 sick the following ratios :—

Phthisis . . 18	Rheumatism . 40	Fever . . . 131
Small-pox . 20	Dysentery, &c. 76	Syphilis . . 137
Pneumonia . 31	Bronchitis . 115	Various . . 432

The expeditionary troops in Tonquin showed deaths, excluding those killed or wounded in war, made up of the following ratios :—

Phthisis . . . 3.8	Spring . . . 20.7
Diarrhœa . . . 4.8	Summer . . . 42.1
Dysentery . . . 30.2	Autumn . . . 23.9
Fever . . . 45.6	Winter . . . 13.3
Sundry . . . 15.6	
Total . 100.0	Total . . 100.0

GERMANY

The following table of mortality includes the whole urban population of the Empire, that is, of all towns over 15,000 population :—

	Number of Deaths			Ratio		
	1877	1877-86	1886	1877	1877-86	1886
Small-pox	42	101	49	2	5	2
Measles	2,179	2,670	3,981	111	121	155
Scarlatina . . .	4,452	4,052	3,187	227	184	124
Diphtheria and croup .	7,523	9,360	12,208	384	426	475
Typhoid	7,325	3,020	2,589	170	142	101
Puerperal . . .	1,115	1,067	998	57	48	39
Phthisis . . .	27,027	29,370	32,981	1,378	1,344	1,283
Respiratory . . .	18,710	22,820	26,984	954	1,040	1,049
Enteritis . . .	9,985	11,430	11,979	509	520	466
Diarrhœa . . .	8,259	10,210	17,197	421	460	669
Various . . .	113,409	125,100	144,977	5,787	5,710	5,637
Total . .	196,026	219,200	257,130	10,000	10,000	10,000
Population . . .	7,260,000	8,370,000	9,820,000	...	...	...

The urban death-rate of the Empire was 26.2 per 1000 inhabitants during the period of ten years down to 1886.

In 10,000 deaths all over Germany the following ratios occur :—

Rheumatism . 25	Heart . . . 230	Apoplexy . 390
Erysipelas . 35	Cancer . . 260	Typhoid . 450
Scarlatina . 160	Diphtheria . 270	Phthisis . . 1,270

In 10,000 deaths in Prussia (1843) the ratios showed—small-pox 80, puerperal 110, apoplexy and paralysis 690, acute internal disorders 240, and chronic disease 388 ; besides suicide 35. and accidental deaths 140.

Deaths in Saxony in the years 1873-76 showed the following diseases thus :—

Per 100,000 Inhabitants Yearly

Small-pox . . 28	Typhoid . . 39	Diphtheria and }
Scarlatina . . 55	Cancer . . 61	croup . . . } 81
		Phthisis . . . 232

Of 10,000 deaths in Berlin, Munich, and Frankfort there were :—

	Berlin	Munich	Frankfort
Scrofula . . .	100	33	...
Cancer . . .	160	...	370
Diphtheria . . .	320	240	130
Typhoid . . .	320	450	420
Apoplexy . . .	410	390	380
Phthisis . . .	990	1,320	1,550

The distribution of deaths in Saxony from various diseases according to months, taking the year as 1200, was thus :—

	Measles	Scarlatina	Diphtheria and Croup	Whooping-Cough	Typhoid	Dysentery
January . . .	119	116	135	88	102	6
February . . .	112	102	126	85	95	20
March . . .	84	78	100	99	87	14
April . . .	65	63	79	84	81	13
May . . .	90	59	75	88	80	13
June . . .	93	59	71	75	79	27
July . . .	93	68	54	95	92	101
August . . .	120	84	50	107	121	367
September . .	64	113	91	118	131	352
October . . .	64	155	119	124	126	181
November . .	119	151	155	126	105	73
December . .	176	152	145	111	101	33
	1,200	1,200	1,200	1,200	1,200	1,200

The ratios of various diseases in 10,000 deaths in Bavaria were as follows :—

Phthisis . . 1010	Apoplexy . . . 372
Dropsy . . . 650	Diphtheria . . . 248
Croup . . . 392	Scarlatina . . . 236

In Hanover the prevalence of certain diseases among given trades is as follows :—

Percentage of Causes of Death

	Glass-Blowers	Dyers	Painters	Varnishers	Printers	Average
Phthisis . .	18	25	24	25	22	23
Acute disease .	28	22	19	18	30	23
Heart disease .	4	9	5	5	3	5
Stomach disease	15	16	15	35	14	19
Rheumatism .	11	13	11	5	8	10
Various . . .	24	15	26	12	23	20
Total . .	100	100	100	100	100	100

In Bavaria the prevalence of typhoid fever according to age was as follows :—

Per Million Inhabitants of each Age

Age		Age		Age	
Under 10 .	300	21–30 . . .	850	41–50 . . .	690
10–20 . . .	480	31–40 . . .	650	Over 50 . .	980

And the death-rate according to age was :—

Age	Per 100 Patients	Age	Per 100 Patients
Under 5 . .	24	41–60 . . .	29
5–15 . . .	10	61–70 . . .	46
16–40 . . .	20	Over 70 . .	75

At page 197 will be found a table from an English medical work showing the predisposition to fever according to age, which is at variance with the above table for Bavaria.

The prevalence of certain diseases in the different seasons was as follows :—

CASES OF SICKNESS

Season	Diarrhœa		Cholera		Phthisis	Pneumonia	Liver
	Breslau	Dresden	Stuttgart	Breslau	Breslau	Breslau	Dresden
Spring	15.5	19.0	10.6	8.7	30.1	34.1	20.5
Summer . . .	43.9	29.7	65.4	58.5	22.6	18.3	33.3
Autumn . . .	27.1	29.1	15.0	26.5	22.8	20.8	17.3
Winter	13.5	22.2	9.0	6.3	25.5	26.8	28.9
	100.0	100.0	100.0	100.0	100.0	100.0	100.0

DEATHS FROM VARIOUS DISEASES

Season	Measles		Diarrhœa	Phthisis	Convulsions		Diarrhœa	Scarlatina
	Berlin	Dresden	Berlin	Berlin	Berlin	Frankfort	Frankfort	Berlin
Spring	9.9	61.0	9.5	27.6	26.2	27.8	15.7	21.6
Summer . . .	55.6	24.0	68.5	22.6	27.2	21.4	49.6	25.4
Autumn . . .	16.9	8.0	16.7	22.8	22.7	19.9	25.1	37.2
Winter	17.6	7.0	5.3	27.0	23.9	30.9	9.6	15.8
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

DEATHS FROM APOPLEXY

Season	Berlin	Hamburg	Dresden	Breslau	Frankfort
Spring .	25.5	26.3	28.9	25.9	26.3
Summer	19.9	22.7	22.7	23.1	22.7
Autumn	22.5	22.7	20.0	22.9	22.7
Winter	32.1	28.3	28.4	28.1	28.3
	100.0	100.0	100.0	100.0	100.0

Season	Deaths from Pneumonia				From Typhoid	
	Berlin	Hamburg	Frankfort	Dresden	Germany	Berlin
Spring . . .	30.0	41.4	37.5	39.9	18.2	19.7
Summer . .	18.4	15.4	17.3	17.7	22.9	25.2
Autumn . .	17.8	13.5	15.7	16.7	35.5	33.4
Winter . .	33.8	29.7	29.5	25.7	23.4	21.7
	100.0	100.0	100.0	100.0	100.0	100.0

It appears from the preceding tables that diarrhœa and cholera are most frequent in summer, phthisis and pneumonia in spring, apoplexy in winter, and typhoid in autumn. As regards measles and scarlatina, the seasons seem to have little effect.

RUSSIA

The death-rate from various diseases per 10,000 inhabitants of each age at St. Petersburg was as follows :—

Disease	5–10	11–20	21–30	31–40	41–50	51–60	61–70	Over 70
Typhoid . . .	12	23	27	18	17	23	23	30
Pneumonia . .	11	7	9	12	19	37	57	85
Phthisis . . .	10	27	61	71	72	72	53	50
Various . . .	110	55	86	97	145	248	452	1,155
Total . .	142	112	183	198	253	380	585	1,320
Males	146	131	203	227	306	475	702	1,660
Females . . .	133	79	147	159	193	297	510	1,160

The aggregate returns of the hospital at Astrakan for 25 years gave the ratio of sick thus :—

In 10,000 Patients

Cancer . . .	55	Rheumatism . .	1,398
Cholera . . .	375	Scurvy . . .	147
Dysentery . .	591	Small-pox . .	93
Erysipelas . .	115	Syphilis . .	1,332
Fever . . .	2,021	Typhus . .	1,498
Leprosy . . .	173	Various . .	1,464
Phthisis . . .	286		
Pleurisy . . .	187	Total .	10,000
Pneumonia . .	265		

The death-rate in the same hospital for various diseases was :—

In 100 Patients

Cancer	30	Leprosy	41	Scurvy	16
Cholera	73	Phthisis	60	Small-pox	42
Dysentery	41	Pleurisy	15	Syphilis	2
Erysipelas	10	Pneumonia	35	Typhus	37
Fever	5	Rheumatism	1	Various	12

The annual death-rate in St. Petersburg of children under five years is 182 per 1000, made up as follows :—

Bowel complaints	60	Croup	9
Pneumonia	36	Small-pox and scarlatina	8
Meningitis	18	Bronchitis	5
Convulsions	13	Sundry	24
Scrofula	9		

In 10,000 deaths at St. Petersburg the following ratios occurred :—

Small-pox	40	Heart	200	Scrofula	260
Puerperal	74	Convulsions	200	Meningitis	500
Scarlatina	90	Apoplexy	210	Phthisis	1,510
Cancer	150	Diphtheria	210	Bronchitis	1,590

The occurrence of certain diseases according to season at St. Petersburg was shown by the ratio of deaths as follows :—

	Infant Cholera	Typhoid	Apoplexy	Puerperal Fever
Spring	33.4	30.8	24.0	29.0
Summer	20.6	21.8	23.8	25.2
Autumn	18.3	16.8	21.2	18.2
Winter	27.7	30.6	31.0	27.6
	100.0	100.0	100.0	100.0

The death-rate in St. Petersburg is so high that deaths exceed births. In 125 years, from 1764 to 1888, there were 1,539,000 births and 1,772,000 deaths, being an excess of 233,000 deaths.

AUSTRIA-HUNGARY

The returns of Austria proper for 1886 showed thus :—

	Number of Deaths			Ratio
	Males	Females	Total	
Small-pox	4,340	4,454	8,794	133
Measles	7,228	6,981	14,209	214
Scarlatina	6,258	5,889	12,147	183
Typhoid	8,008	7,882	15,890	240
Diarrhœa	4,895	4,718	9,613	146
Whooping-cough	10,409	10,568	20,977	316
Diphtheria	16,231	15,435	31,666	477
Respiratory	36,459	32,907	69,366	1,045
Phthisis	46,912	44,643	91,555	1,380
Enteritis	17,670	15,298	32,968	496
Apoplexy	8,710	7,069	15,779	237
Cancer	4,809	6,313	11,122	168
Various	166,850	161,320	328,170	4,965
Total	338,779	323,477	662,256	10,000

The returns of Hungary for 1886 showed as follows :—

	Number of Deaths		
	Males	Females	Total
Unmarried	36,800	31,800	68,600
Married	59,200	46,500	105,700
Widowed	18,300	36,200	54,500
Over five years	114,300	114,500	228,800
Infants under five	134,700	116,800	251,500
Total	249,000	231,300	480,300

The municipal hospitals of Hungary showed the number of cases and deaths as follows :—

	Cases	Died	Death-Rate	Ratio Cases	Ratio Deaths
Small-pox	16,055	3,740	23.4	268	348
Measles	24,801	1,752	7.0	413	163
Scarlatina	6,325	1,221	19.3	106	112
Diphtheria	4,189	2,292	54.6	70	214
Diarrhœa	3,211	500	15.6	54	46
Typhoid	771	102	13.2	13	9
Whooping-cough	1,890	147	7.7	32	14
Cholera	1,871	989	53.0	32	92
Various	710	19	2.7	12	2
Year 1886	59,823	10,762	17.9	1,000	1,000
Average 1880–85	52,200	9,905	19.1	...	...

The hospital returns of Vienna give the following percentages :—

	Cases of Sickness					Deaths	
	Measles	Diarrhœa	Liver	Pneumonia	Phthisis	From Phthisis	Scarlatina
Spring	38.9	25.7	29.7	39.1	34.1	34.1	18.9
Summer	33.7	31.6	25.9	17.9	24.5	24.7	26.9
Autumn	8.7	21.7	20.4	17.3	17.7	17.5	25.8
Winter	18.7	21.0	24.0	25.7	23.7	23.7	38.4
	100.0	100.0	100.0	100.0	100.0	100.0	100.0

In 10,000 deaths at Buda-Pesth 90 were of Bright's disease, 140 apoplexy, 460 meningitis, 730 convulsions, and 1545 phthisis. At Vienna the ratios were :—Puerperal 40, heart 170, small-pox 40, pneumonia 714, and phthisis 2080. The effects of overcrowding of population on the death-rate is shown in the returns at Buda-Pesth of deaths among the working classes for the years 1872–75.

	Deaths Yearly of Work-People, Living		
	Not more than Two in a Room	Over Two in a Room	Total
Small-pox	52	415	467
Typhus	45	155	200
Scarlatina	31	141	172
Diphtheria	11	63	74
Various	19	180	199
Contagious diseases	158	954	1,112
Pneumonia	65	286	351
Phthisis	194	704	898
Diarrhœa	48	453	501
Various	1,052	3,900	4,952
Total	1,517	6,297	7,814

It appears that 80 per cent. of the mortality among working-classes was of people living more than two in a room.

ITALY

Of 10,000 deaths at Rome the ratio showed : —

Scarlatina	10	Typhoid	230	Apoplexy	530
Bronchitis	29	Small-pox	290	Digestive	1,100
Cancer	170	Ague	460	Phthisis	1,140

At Naples the ratios were in 10,000 :—Ague, 107 ; typhoid, 300 ; and apoplexy, 370 ; at Genoa, ague, 133 ; digestive disorders, 1,580. The mean ratios in 10,000 deaths of all Italian cities were :—

Bright's . .	40	Measles . .	95	Apoplexy . .	360
Whoop.-cough	50	Dysentery .	130	Diphtheria .	360
Erysipelas .	50	Small-pox .	220	Pneumonia .	540
Hepatitis . .	90	Typhoid . .	240	Heart . . .	585

The ratios in Turin in 10,000 deaths were :—

Scrofula . .	30	Typhoid . .	460	Apoplexy .	610
Syphilis . .	30	Heart . . .	490	Phthisis . .	830
Cancer . .	160	Convulsions .	560	Digestive .	1,550

The prevalence of some diseases according to months, taking the year as 1200, is shown thus :—

Deaths from Apoplexy			Admis-sion to Fever Hospital	Deaths	
Turin	Milan	Bologna	Rome	Ague / Turin	Sciatica / Italy
				Turin	Italy
			Rome		
January .	147	132	149	38	30	265
February .	107	128	169	44	30	78
March .	107	108	114	56	48	126
April . .	90	99	95	63	78	78
May . .	99	93	91	62	78	76
June . .	77	79	67	65	30	76
July . .	81	78	76	122	48	46
August .	80	73	69	299	156	110
September	83	84	72	211	270	92
October .	83	93	85	113	204	76
November	120	112	97	80	114	110
December	119	121	116	47	114	67
Year	1,200	1,200	1,200	1,200	1,200	1,200

SPAIN

Madrid hospitals publish the following table of proportions of deaths from phthisis according to age :—

Under 20	13.4
20–30	28.9
30–40	23.8
40–50	18.1
Over 50	15.8
Total . . .	100.0

The prevalence of this disease according to months is shown in the number of deaths at Madrid, taking the year as 1200 :—

January . . .	162	July . . .	18
February . .	126	August . .	27
March . . .	131	September . .	86
First quarter. .	419	Third quarter .	131
April . . .	113	October . .	92
May . . .	74	November . .	129
June . . .	40	December . .	202
Second quarter .	227	Fourth quarter .	423

PORTUGAL

Of 10,000 deaths in Lisbon the ratios showed :—

Bright's . .	30	Scrofula . .	110	Bronchitis .	420
Rheumatism .	43	Convulsions .	190	Apoplexy .	685
Ague . . .	60	Cancer . .	260	Phthisis . .	1,147

SWEDEN

The deaths per million inhabitants were as follows :—

	1861–65	1866–70	1871–75
Diphtheria . .	2,873	1,497	1,579
Scarlatina . . .	2,292	3,475	1,899
Small-pox . . .	545	1,189	1,576
Typhoid . . .	1,449	3,408	2,031

The deaths in hospital in 1878 were as follows :—

Diseases	Number	Per Cent.
Respiratory	4,353	31.4
Digestive	2,177	15.8
Contagious	2,123	15.3
Nervous	1,436	10.3
Various	3,785	27.2
Total . .	13,874	100.0

Hospital mortality in 1860 was 15 per cent. of the sick, and in the years 1870–76 only 12 per cent. The relative mortality of Sweden and Norway in different diseases was per 100 patients as follows :—Croup 52, diphtheria 20, scarlatina 18, pneumonia 15, small-pox 13, typhus 12, diarrhœa 11. The percentage of deaths under and over ten years of age in certain diseases was as follows :—

Age	Small-pox	Scarlatina	Diphtheria	Typhoid
Under 10 . .	41.2	89.8	86.4	13.2
Over 10 . . .	58.8	10.2	13.6	86.8
Total . .	100.0	100.0	100.0	100.0

The hospital returns of sickness showed the following ratio :—

Per 10,000 Inhabitants

Diarrhœa . . .	165	Ague	36
Small-pox . .	42	Scarlatina . . .	15
Whooping-cough .	40	Typhus	24
Diphtheria . .	38	Dysentery . . .	7
Typhoid . . .	37		

The death-rate of various diseases showed thus :—

Deaths per 1000 Patients of each Disease

Ague . . .	2	Typhoid . .	110	Small-pox .	171
Diarrhœa . .	10	Dysentery .	134	Typhus . .	204
Whoop.-cough	70	Pneumonia .	148	Diphtheria .	251
Measles . .	83	Scarlatina .	155	Croup . . .	550

The effect of town-life on death-rate in Sweden is shown thus :—

	Deaths Yearly per 100,000 Persons of each Class			
	Under 10 Years Old		Over 10 Years	
	Rural	Town	Rural	Town
Typhoid	18	53	32	96
Diarrhœa, &c. . .	31	1,276	3	21
Small-pox . . .	56	25	26	56
Whooping-cough .	76	119	...	...
Measles . . .	80	173	2	2
Diphtheria and croup	292	425	8	7
Scarlatina . . .	376	460	11	11
Total, 7 diseases	929	2,531	82	193

Deaths of puerperal fever average 27 per 10,000 births in rural parts, and 74 in towns, the rate for all Sweden being 34. The prevalence of certain diseases according to season shows thus :—

	Pneumonia	Ague
Spring	37.9	31.1
Summer	21.2	18.6
Autumn	17.2	25.9
Winter	23.7	24.4
Total .	100.0	100.0

The prevalence of diseases according to months, taking the year as 1200, shows :—

	Bronchitis	Diarrhœa	Diphtheria	Scarlatina	Small-pox	Croup
January . . .	150	41	121	106	120	144
February . . .	160	41	119	99	130	136
March . . .	143	31	99	93	129	130
April	130	33	93	95	156	110
May	102	30	85	91	152	88
June	67	55	72	90	128	64
July	49	150	69	81	91	45
August . . .	46	292	77	80	52	48
September . .	58	227	86	91	41	76
October . . .	82	149	112	118	43	108
November . .	104	94	137	136	68	128
December . .	109	54	130	120	90	123
Year .	1,200	1,200	1,200	1,200	1,200	1,200

In 10,000 deaths these ratios occurred :—

Ague . . . 14	Diarrhœa . . 190	Small-pox . 158
Puerperal . . 38	Whoop-cough 190	Scarlatina . 190
Rheumatism . 40	Cancer . . 240	Pneumonia . 850
Drink . . . 40	Apoplexy . . 590	Typhoid . 203
Liver . . . 90	Bronchitis . 630	Phthisis . . 1,340
Croup . . . 165	Diphtheria . 160	

FINLAND

Official returns for 1870–71 give the distribution of 10,000 deaths as follows :—

Measles . . 50	Dysentery . 170	Typhus . . 810
Small-pox . 60	Croup . . 250	Phthisis . . 2,210
Scarlatina . 60	Whoop-cough 510	Various . . 5,880

Deaths of puerperal fever were 96 in 10,000 births ; the rate in towns was 18 per cent. higher than in rural departments.

NORWAY

In 1876 among 10,000 deaths the diseases stood thus :—

Typhoid . . 220	Diarrhœa . 280	Infant con- } 784
Apoplexy . 240	Cancer . . 415	vulsions }
Heart. . . 260	Bronchitis . 608	Scarlatina . 1285
		Phthisis . 1450

The prevalence of certain diseases according to months was as follows :—

	Bronchitis	Pneumonia	Diarrhœa	Typhoid	Diphtheria	Scarlatina	Small-pox	Croup
January	160	98	98	150	136	122	144	141
February	152	169	89	103	120	110	161	132
March	132	161	72	64	112	103	157	134
April	112	160	61	43	89	92	142	105
May	96	134	65	38	88	90	172	84
June	72	77	60	32	79	85	133	64
July	53	55	113	57	79	80	78	47
August	48	37	190	95	73	76	46	50
September	62	55	143	117	87	72	34	89
October	82	76	95	116	102	100	27	103
November	110	91	109	209	118	137	40	125
December	121	87	105	176	117	133	66	126
Year .	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200

In 10,000 deaths at Christiania there were :—

Whooping . 100	Cancer . . 290	Scarlatina . 670
Convulsions . 110	Erysipelas . 270	Diarrhœa . 420
Heart. . . 130	Diphtheria . 440	Pneumonia . 680
Apoplexy . 220	Typhoid . . 630	Phthisis . . 1720

DENMARK

Of 10,000 deaths at Copenhagen the ratios were :—

Rheumatism . 35	Diphtheria . 160	Cancer . . 360
Scrofula . 70	Puerperal . 160	Convulsions . 560
Drink . . . 70	Apoplexy . 230	Typhoid . . 700
Small-pox . 70	Scarlatina . 240	Pneumonia . 710
Bright's . . 100	Heart . . 320	Phthisis . . 1270

HOLLAND

In 10,000 deaths throughout Holland the principal diseases stood thus :—

Typhus . . 21	Diphtheria . 130	Apoplexy . 280
Scarlatina . 40	Cancer . . 180	Dysentery . 290
Bright's . . 50	Heart . . . 180	Phthisis . . 950
Puerperal . 50	Whooping- } 180	Various . . 7,649
	cough }	

In 10,000 deaths at Amsterdam the ratios were :—

Syphilis . . 18	Bright's . . 120	Meningitis . 370
Typhus . . 23	Scrofula . . 140	Apoplexy . 380
Scarlatina . 50	Measles . . 150	Typhoid . 460
Puerperal . 53	Diphtheria . 200	Pneumonia . 570
Hepatitis . 81	Bronchitis . 220	Convulsions . 600
Small-pox . 100	Cancer . . 230	Phthisis . . 870
Ague . . . 106	Heart . . 290	

BELGIUM

The prevalence of certain diseases according to season is shown thus :—

	Deaths from					
	Phthisis	Apoplexy	Rheumatism	Bronchitis	Pneumonia	Diarrhœa
Spring . . .	27.7	26.9	33.4	26.4	32.6	24.4
Summer . . .	23.2	22.2	12.5	17.3	17.7	31.5
Autumn . . .	24.3	22.3	22.9	21.4	21.4	23.9
Winter . . .	24.8	28.6	31.2	34.9	28.3	20.2
Total .	100.0	100.0	100.0	100.0	100.0	100.0

The ages of phthisis and other diseases stand thus :—

Age	Deaths from					
	Phthisis	Typhoid	Apoplexy	Bronchitis	Diarrhœa, &c.	Pneumonia
Under 20 . .	25.7	43.3	5.6	60.4	70.0	29.0
20–30 . . .	19.2	18.0	2.6	2.0	3.0	5.4
31–40 . . .	15.4	11.2	4.2	1.9	3.0	6.2
41–50 . . .	12.2	9.6	8.1	2.8	4.0	8.1
51–60 . . .	11.3	8.9	17.0	5.3	6.0	14.0
Over 60 . . .	16.2	9.0	62.5	27.6	14.0	37.3
Total .	100.0	100.0	100.0	100.0	100.0	100.0

The causes of death were as follows :—

				Annual Averages			Ratio in 10,000 Deaths		
				1856–60	1871–80	1886–87	1856–60	1871–80	1886–87
Bronchitis, &c.	.	.	.	10,237	16,827	19,974	997	1,402	1,664
Phthisis	.	.	.	14,523	17,642	16,606	1,416	1,470	1,384
Diarrhœa, &c.	.	.	.	3,451	8,552	9,107	336	713	.759
Whooping-cough .	.	.	.	2,172	3,840	3,885	212	320	.324
Croup .	.	.	.	3,033	3,250	3,758	296	271	.324
Measles	.	.	.	1,062	3,452	2,943	10	288	313
Typhoid	.	.	.	4,630	4,161	2,480	451	347	245
Puerperal	.	.	.	654	1,313	1,342	63	109	207
Scarlatina	.	.	.	1,204	1,963	1,146	117	164	112
Small-pox	.	.	.	1,116	5,080	911	108	423	95
Accidents	.	.	.	1,542	2,039	1,964	150	170	76
Various	.	.	.	59,033	52,279	55,982	5,844	4,323	164
									4,657
		Total	. .	102,657	120,398	120,098	10,000	10,000	10,000

In 10,000 deaths throughout Belgium the ratios of some were :—

Erysipelas	.	40	Meningitis	. .	280	Pneumonia	450
Cancer	.	140	Whooping- }		280	Typhoid .	460
Measles	.	165	cough . }			Convulsions	720
Heart .	.	190	Diphtheria	.	280	Phthisis .	. 1,825
			Diarrhœa .	.	370		

The ratios at Brussels were as follows :—

Whooping- }		70	Puerperal .	.	210	Convulsions	450
cough . }			Typhoid .	.	220	Bronchitis .	480
Hepatitis .	.	81	Apoplexy .	.	310	Heart . .	685
Scrofula .	.	90	Cancer .	.	420	Phthisis .	. 1,750
Scarlatina .	.	140	Pneumonia .	.	430	Digestive }	
Small-pox	.	150	Diphtheria	.	440	disorders }	1,500

SWITZERLAND

In 10,000 deaths the various diseases stood thus :—

Measles	. .	46	Scarlatina	.	146	Heart .	. 385
Puerperal .	.	50	Typhoid .	.	184	Phthisis .	. 1,110
Small-pox	.	54	Diphtheria	.	304	Bronchitis }	
Whoop.-cough	112	Apoplexy .	.	370	Pneumonia }	1,180

In Berne, of 10,000 deaths, there were of puerperal fever, 80 ; of Bright's disease, 100 ; of cancer, 320 ; of apoplexy, 420.

In Geneva the ratios in 10,000 deaths showed :—

| Bright's | . . | 15 | Typhoid . | . | 350 | Cancer . | . 530 |
| Puerperal . | . | 95 | Apoplexy . | . | 400 | Phthisis . | . 1,250 |

GREECE

At Athens the deaths from various diseases occurred in the following ratios according to season :—

Quarter Ending	Digestive	Phthisis	Pneumonia	Heart Disease	Typhoid	Diphtheria	Liver	Bronchitis	General Mortality
March . . .	10.6	25.4	34.5	31.4	6.0	22.8	22.2	36.0	23.6
June . . .	31.0	27.0	29.0	21.4	12.0	15.4	26.7	29.6	26.1
September . .	36.1	22.9	14.0	17.5	66.5	19.6	28.9	9.6	25.9
December . .	22.3	24.7	22.5	29.7	15.5	42.2	22.2	24.8	24.4
Year .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

In 10,000 deaths the averages during the years 1876–82 were as follows :—

Liver . .	. 124	Heart disease	323	Apoplexy .	630
Whoop.-cough	210	Bronchitis .	391	Pneumonia .	856
Diphtheria .	219	Ague . .	. 420	Phthisis . .	1,076
Convulsions .	266	Typhoid . .	475	Digestive dis.	1,658

The returns for ague, apoplexy, convulsions, and whooping-cough are not for the whole period.

Fever cases occur mostly from July to September ; if we take the year as 1200, the various months will stand thus :—

	Cases			Cases			Cases
January	. .	40	May	. . .	69	September	. 168
February	. .	41	June	. . .	101	October	. . 103
March .	. .	50	July	. . .	240	November	. 63
April	. . .	53	August .	. .	226	December.	. 46

UNITED STATES

Of 10,000 deaths, according to the Census of 1880, the following ratios occurred :—

Calculus .	.	1	Apoplexy .	.	140	Convulsions	250
Bright's .	.	35	Whooping	.	148	Typhoid .	. 310
Puerperal .	.	40	Dysentery	.	160	Heart .	. 350
Rheumatism .		59	Meningitis	.	190	Diphtheria .	480
Scrofula .	.	70	Scarlatina	.	220	Diarrhœa .	880
Cancer .	.	130	Ague . .	.	240	Phthisis .	. 1,420

The prevalence of diarrhœa at New York and of infant cholera at Philadelphia, according to seasons, was thus :—

Season	Diarrhœa, New York	Infant Cholera, Philadelphia
Spring	9.2	2.0
Summer	79.8	92.8
Autumn	7.0	4.5
Winter	4.0	0.7
	100.0	100.0

The ratios in New York of 10,000 deaths showed :—

Syphilis .	.	40	Scrofula .	.	83	Typhoid .	350
Puerperal.	.	56	Drink . .	.	70	Phthisis .	. 1,550
Cancer .	.	80	Diphtheria	.	300		

CANADA

Rates for phthisis and typhoid in 10,000 deaths are :—

	Phthisis	Typhoid
Ontario	1,540	417
Quebec	1,380	374
Nova Scotia . . .	2,410	205

In 10,000 deaths the various diseases, according to the *Dict. Medicale*, stand thus :—

Ague	.	.	.	43	Croup .	.	.	182
Apoplexy	.	.	110	Diphtheria	.	.	114
Bowel disease	.	.	320	Diarrhœa	.	.	410
Brain disease	.	.	420	Dysentery	.	.	107
Bronchitis	.	.	130	Epilepsy	.	.	30
Cancer	.	.	126	Erysipelas	.	.	68
Convulsions	.	180	Heart disease	.	.	370

Hydrocephalus	.	.	130	Puerperal	.	.	145
Infant cholera	.	.	110	Rheumatism	.	.	70
Liver disease	.	.	140	Scarlatina	.	.	458
Measles	.	.	220	Small-pox	.	.	55
Paralysis	.	.	210	Typhoid	.	.	364
Phthisis	.	.	1,620	Whooping-cough	.	260
Pneumonia	.	.	660			

Ague is almost confined to Ontario, showing only 10 in 10,000 deaths in the other provinces.
The deaths in the principal cities in 1886 were as follows :—

Disease	Montreal	Toronto	Quebec	Hamilton	Halifax	Winnipeg	Ottawa	Seven Cities
Phthisis	486	236	182	96	95	30	62	1,187
Lung	465	351	164	98	102	51	83	1,314
Diarrhœa	687	177	257	79	57	65	248	1,570
Brain	341	127	244	51	47	21	30	861
Diphtheria	235	184	118	76	39	23	46	721
Throat	200	111	129	21	56	19	28	564
Heart	216	127	76	48	47	14	27	555
Debility	1,014	255	235	68	39	15	40	1,666
Various	1,570	978	738	318	337	162	351	4,454
Total . .	5,214	2,546	2,143	855	819	400	915	12,892

Disease	Ratio in 10,000 Deaths							
	Montreal	Toronto	Quebec	Hamilton	Halifax	Winnipeg	Ottawa	Seven Cities
Phthisis	930	924	847	1,123	1,158	750	677	920
Lung	891	1,378	766	1,147	1,244	1,275	905	1,020
Diarrhœa	1,317	697	1,200	922	695	1,625	2,707	1,218
Brain	652	497	1,140	597	573	525	328	668
Diphtheria	447	721	551	886	475	575	502	560
Throat	383	437	602	246	683	475	306	438
Heart	415	497	354	561	573	350	295	430
Debility	1,945	1,003	1,093	796	475	375	437	1,293
Various	3,020	3,846	3,447	3,722	4,124	4,050	3,843	3,453
Total . .	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

JAPAN

The prevalence of various diseases at certain ages is shown by the ratio of deaths according to age thus :—

Age	Small-pox	Diphtheria	Cholera	Age	Typhoid	Typhus	Dysentery
Under 3 . .	29.6	34.9	1.8	Under 10 . .	12.1	10.2	30.1
3-7 . . .	22.0	30.3	4.9	10-15 . . .	11.6	11.2	13.4
7-15 . . .	26.8	18.0	8.3	15-25 . . .	26.2	23.9	17.2
15-30 . . .	18.7	10.4	24.0	25-40 . . .	25.7	28.5	17.3
30-50 . . }	2.9	6.4	33.2	40-60 . . .	17.2	18.0	13.1
Over 50 . . }			27.8	Over 60 . . .	7.2	8.2	8.9
Total .	100.0	100.0	100.0	Total .	100.0	100.0	100.0

The death-rate among typhoid patients was 32 per cent. The classification of sickness and of deaths was as follows :—

Prevalent Diseases

Typhoid	.	.	36.1
Dysentery	.	.	30.4
Small-pox	.	.	19.1
Typhus	.	.	9.3
Diphtheria	.	.	5.1
Total	.	100.0	

Causes of Death

Contagious diseases	.	13.7
Nervous	,,	.	15.7
Digestive	,,	.	20.6
Respiratory	,,	.	14.7
Sundry	,,	.	35.3
Total	.	100.0	

DISTANCES

The principal ocean routes are as follows in nautical miles, of which six are equal to seven statute miles :—

Aden—Mauritius	2,822
Alexandria—Southampton . . .	2,960
Amoor River—San Francisco . .	3,946

Ascension—Cape Horn	3,800
Auckland—Panama	6,490
Azores—Portsmouth	1,390
Bahia—Southampton	4,366
Batavia—Sydney	3,870
Behring's Straits—San Francisco .	2,720
Bermuda—Southampton . . .	2,973
Bombay—Cape of Good Hope . .	4,527
,, Mauritius . . .	2,503
,, Melbourne . . .	5,530
,, London . . .	6,330
Boston—Galway	2,385
Calcutta—London	7,950
,, Melbourne	5,230
,, Suez	4,580
Cape of Good Hope—Calcutta .	5,381
,, Bombay .	4,527
,, Java . .	5,025
,, Liverpool .	5,998
Cape Horn—Ascension . . .	3,800
,, Liverpool . . .	7,325
,, Sydney	5,470

Demerara—London	4,030
Fernando Po—Plymouth . . .	4,130
Galway—Boston	2,385
Gibraltar—Southampton . . .	1,160
Glasgow—New York	3,400
Halifax—Galway	2,165
Havanna—New York	1,190
„ Portsmouth . .	4,029
Hong-Kong—Honolulu . . .	4,838
Honolulu—Callao	5,145
„ San Francisco . . .	2,081
„ Tahiti	2,378
„ Valparaiso . . .	5,902
Jamaica—Portsmouth . . .	4,050
Java—Cape of Good Hope . .	5,025
Liverpool—Cape of Good Hope .	5,998
„ Cape Horn . .	7,325
„ Melbourne . . .	11,555
„ New York . . .	2,980
„ Portland . . .	2,770
„ Quebec . . .	2,634
Lisbon—Madeira	535
London—Bombay	6,330
„ Calcutta	7,950
„ Demerara . . .	4,030
„ Madras	7,330
„ Singapore . . .	8,345
Madeira—Plymouth . . .	1,200
Madras—London	7,330
Mauritius—Aden . . .	2,822
„ Bombay . . .	2,503
„ Cape of Good Hope .	2,400
„ Melbourne . .	4,570
Melbourne—Calcutta . . .	5,230
„ Liverpool . .	11,555
„ Mauritius . .	4,570
Montevideo—Falmouth . . .	2,886
„ Valparaiso . .	2,550
New York—Galway . . .	2,731
„ Glasgow . . .	3,400
„ Havanna . . .	1,190
„ Liverpool . . .	2,980
„ Portsmouth . . .	3,075
„ Southampton . .	3,080
Pernambuco—Teneriffe . . .	2,450
Plymouth—Fernando Po . . .	4,130
„ Madeira . . .	1,200
Portsmouth—Azores . . .	1,390
„ Havanna . .	4,029
„ Jamaica . .	4,050
„ New York . .	3,075
„ St. Helena . .	4,330
„ Tahiti . .	11,530
Quebec—Galway	2,392
„ Liverpool . . .	2,634
Rio Janeiro—Southampton . .	5,060
„ Valparaiso . .	3,560
St. Helena—Portsmouth . .	4,330
„ Cape of Good Hope	1,800
St. Thomas—Southampton . .	3,570
St. Vincent—Pernambuco . .	1,608
„ Teneriffe . .	850
San Francisco—Amoor River .	3,946
„ Behring's Straits .	2,720
„ Honolulu . .	2,081
„ Panama . .	3,150
Shanghai—Sydney	4,640
Singapore—London	8,345
Suez—Calcutta	4,580
Sydney—Batavia	3,870
„ Cape Horn . . .	5,470
„ Shanghai . . .	4,640
„ Valparaiso . . .	6,198
Tahiti—Honolulu	2,378
„ Portsmouth . . .	11,530
Teneriffe—Pernambuco . . .	2,450
Valparaiso—Honolulu . . .	5,902
„ Tahiti . . .	4,233
„ Sydney . . .	6,198
, Panama . . .	2,700

The following table shows distances from London as the bird flies, in English statute miles :—

Algiers . . .	1,050	Jerusalem . . .	2,100
Amsterdam . .	210	Lima	6,900
Astrakan . . .	2,180	Lisbon . . .	980
Azores . . .	1,680	Madeira . . .	1,600
Barcelona . .	680	Madras . . .	5,170
Belgrade . .	1,040	Madrid . . .	780
Berlin . . .	580	Malta . . .	1,260
Bordeaux . .	460	Manilla . . .	6,700
Boston . . .	3,190	Marseilles . .	620
Bremen . . .	390	Mauritius . .	6,010
Brussels . .	190	Melbourne . .	9,990
Bucharest . .	1,270	Mexico . . .	5,800
Buda-Pesth . .	900	Montevideo . .	7,150
Buenos Ayres .	7,260	Montreal . .	3,340
Cadiz . . .	1,080	Moscow . .	1,580
Cairo . . .	2,160	Naples . . .	1,000
Calcutta . .	4,870	Natal . . .	5,850
Canton . .	5,960	New Orleans .	4,820
Cape Town .	5,950	New York . .	3,620
Chicago . .	4,050	Palermo . .	1,150
Colombo . .	5,370	Paris . . .	200
Constantinople .	1,540	Pekin . . .	5,400
Copenhagen .	600	Philadelphia .	3,700
Cyprus . .	1,980	Quebec . .	3,200
Dresden . .	600	Quito . . .	6,500
Dublin . .	280	Rio Janeiro . .	6,000
Edinburgh . .	300	Rome . . .	900
Falklands . .	8,150	San Francisco .	6,000
Florence . .	730	St. Petersburg .	1,380
Frankfort . .	400	Sierra Leone .	3,300
Geneva . .	460	Singapore . .	7,050
Genoa . .	650	Stockholm . .	910
Gibraltar . .	1,100	Sydney . .	10,120
Halifax . .	2,940	Teneriffe . .	2,080
Hamburg . .	450	Utah . . .	5,500
Havanna . .	4,700	Valparaiso . .	7,850
Hong-Kong .	6,040	Vienna . .	760
Honolulu . .	8,430	Warsaw . .	910
Iceland . .	1,060	Washington . .	3,800
Jamaica . .	4,800	Yeddo . . .	6,600
Jersey . .	170		

Distances by railway route from London are :—

	Miles		Miles
Antwerp . . .	260	Munich . . .	758
Berlin . . .	733	Paris . . .	283
Constantinople .	2,260	Rome . . .	1,195
Copenhagen .	854	St. Petersburg .	1,748
Hamburg . .	849	Stockholm . .	1,195
Lisbon . . .	1,603	Turin . . .	781
Madrid . . .	1,191	Vienna . .	963
Moscow . . .	1,940	Warsaw . . .	1,130

DIVORCE

Bertillon's and other tables show that the number of divorces compare with marriages in various countries as follows :—

	Per 10,000 Marriages			Per 10,000 Marriages	
	1867–76	1877–86		1867–76	1877–86
England .	9	19	Norway .	24	30
Scotland .	16	29	Sweden .	56	73
Ireland . .	1	2	Holland .	50	91
U. Kingdom	9	18	Belgium .	40	69
France . .	72	127	Roumania .	99	106
Germany .	107	152	Switzerland	...	468
Russia . .	18	22	Paris . .	297	322
Poland . .	49	55	Berlin . .	420	533
Austria . .	7	10	Vienna . .	210	290
Hungary .	...	64	Australia .	...	35
Italy . .	31	24	U. States .	330	444
Denmark .	353	406	Canada . .	5	12

Kummer's table for five countries covers a period of 50 years :—

Period	Divorces per 10,000 Marriages						
	Sweden	Belgium	Saxony	Holland	Paris	Brussels	France
1831–40	49	12	256	...	70	53	17
1841–50	43	14	252	...	90	66	27
1851–60	43	24	255	33	156	99	44
1861–70	49	29	205	37	229	112	68
1871–80	65	51	256	48	249	124	78

The following table shows the number of divorces (including judicial separations) in the various countries during twenty years ending December 1886. The figures are mainly from Commissioner Carroll Wright's work (Washington, 1889), compiled from Bertillon's and other returns :—

	Actual Number of Divorces Granted				
	1867–71	1872–76	1877–81	1882–86	20 Years
England .	724	1,050	1,743	1,891	5,408
Scotland .	177	220	337	390	1,124
Ireland . .	4	13	21	17	55
U. Kingdom	905	1,283	2,101	2,298	6,587
France . .	9,850	11,384	13,132	22,750	57,116
Germany .	18,450	22,085	24,143	29,140	93,818
Russia . .	4,597	5,095	5,721	6,563	21,976
Poland . .	809	1,073	1,432	1,725	5,039
Austria . .	...	690	808	856	...
Hungary .	...	...	5,246	4,835	...
Italy . . .	3,136	...	3,195	2,828	...
Sweden . .	619	953	1,053	1,109	3,734
Norway . .	...	162	195	...	...
Denmark .	...	2,677	3,046	...	...
Holland . .	700	810	1,160	1,570	4,240
Switzerland	...	...	4,811	4,588	...
Roumania .	...	1,787	1,900	...	...
Belgium . .	620	899	1,189	1,501	4,209
Europe, approximately	} 46,600	57,500	69,132	85,100	258,332
Canada . .	15	16	33	52	116
U. States .	53,574	68,547	89,284	117,311	328,716
Total	100,189	126,063	158,449	202,463	587,164

In the above table Germany is an estimate down to 1881 (see p. 221), and in some cases where the record of a year is missing, the average for the other four years of the period is added.

Kummer also gives the following table of the increase of divorce :—

	1851–55	1856–60	1861–65	1866–70	1871–75	1876–80
France . . .	100	128	150	190	163	225
Belgium . . .	100	140	160	190	280	420
Holland . . .	100	100	112	115	139	151
Saxony . . .	100	83	75	72	80	105
Sweden . . .	100	98	109	113	132	161

Classifying the nations according to creed, we find divorces per 10,000 marriages :—

Among Catholics 41
Among Protestants 123

In countries of mixed creeds the ratios were as follows :—

	Protestant Provinces	Catholic Provinces	Mixed Provinces	Date
U. Kingdom .	15	1	...	1871–80
Bavaria . .	61	57	223	1862–75
Holland . .	45	9	...	1850–64
Switzerland .	595	128	505	1876–80
Hungary . .	283	12	...	1878–79

As regards cities Kummer gives the following :—

Divorces per 10,000 Marriages

Antwerp . . . 26	Liege 115
Augsburg . . . 15	London . . . 40
Berlin . . . 103	Munich . . . 153
Breslau . . . 307	Nuremberg . . 77
Brussels . . . 124	Paris . . . 250
Bucharest . . 443	Prague . . . 18
Christiania . . 17	Ratisbon . . . 63
Cologne . . . 64	Rotterdam . . 197
Copenhagen . . 292	San Francisco . 2233
Frankfort . . 171	Stockholm . . 281
Ghent . . . 17	Vienna . . . 233
Hague . . . 111	

The above results are for different periods between 1860 and 1875, usually averages of five years.

The proportions of divorces according to length of marriage were :—

Years Married	France	Saxony	Italy	Switzerland	Sweden	Roumania	Average
Under 5	21.5	35.7	40.9	36.0	11.2	50.9	32.4
5–10	29.6	29.3	22.9	34.1	24.8	37.4	29.0
Over 10	48.9	35.0	36.2	39.9	64.0	11.7	38.6
Total .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Date	1876–79	1875–77	1866–79	1876–80	1870–80	1875–77	...

The percentages of marriages dissolved at the petition of husband or of wife showed thus :—

Petition by	Scotland	Norway	Belgium	Saxony	Italy	Roumania	Massachusetts	Average
Husband	56	68	44	45	34	27	33	42
Wife	44	32	56	55	66	73	67	58
Total . .	100	100	100	100	100	100	100	100
Date	1878–81	1875–80	1880	1875 80	1866–79	1875–77	1860–78	...

The proportion of marriages dissolved, with or without children, shows thus :—

	France (1851-80)	Italy (1866-79)	Holland (1876-78)	Switzer-land (1877-80)
With children	62	52	35	63
Without children	38	48	65	37
Total	100	100	100	100

In the term of five years ending 1880 the number of children corresponding to 100 divorce couples in Holland was 75, and in Sweden 130. Want of children in Holland seems a primary pretext for divorce ; not so much so elsewhere.

The ratio of persons divorced per million inhabitants yearly of each class was as follows :—

	France (1865-75)	Switzerland (1876-80)	Sweden (1876-80)
Learned class	125	470	130
Merchants	135	620	218
Farmers	20	190	20
Operatives	133	490	140
Gen. population	55	370	46

The number of divorced persons married in every 10,000 marriages, according to various returns down to 1880, averaged thus :—

	Men		Women
England	7	...	5
Holland	10	...	8
Hungary	12	...	10
Prussia	22	...	24
Denmark	32	...	32
Switzerland	60	...	42

There is apparently some relationship between divorce and suicide in the various countries, viz. :—

	Divorces per 10,000 Marriages	Suicides per Million Inhabitants		Divorces per 10,000 Marriages	Suicides per Million Inhabitants
Ireland	2	17	Germany	210	143
England	22	67	Denmark	410	282
Scotland	29	40	Switzerland	478	202
Italy	22	37	London	40	86
Sweden	75	81	Berlin	103	170
Belgium	74	71	Brussels	124	271
Holland	73	96	Vienna	233	287
France	91	156	Paris	250	422

UNITED KINGDOM

The official report of the working of the Divorce Act in Great Britain during 30 years showed thus :—

Period	Number of Petitions	Granted	Annual Average per Million Inhabitants
1858–67	2,724	1,492	6
1868–77	4,199	1,971	7
1878–87	5,991	3,832	13
30 Years	12,914	7,295	9

The total of divorces and marriages in 20 years was :—

	Number		Ratio of Divorces per 10,000 Marriages
	Divorces	Marriages	
England	5,408	3,881,000	14.0
Scotland	1,124	499,000	22.5
Ireland	55	492,000	1.1
U. Kingdom	6,587	4,872,000	...

The returns for England and Wales showed as follows :—

Period	Divorces	Annual Average	Per Million Population
1867–71	724	145	6.2
1872–76	1,050	210	9.0
1877–81	1,743	349	13.0
1882–86	1,891	378	14.0
20 Years	5,408	271	11.0

The returns for Scotland were as follows :—

Period	Divorces	Annual Average	Per Million Population
1867–71	177	35	11.0
1872–76	220	44	12.5
1877–81	337	67	15.3
1882–86	390	78	21.0
20 years	1,124	56	15.0

The returns for Ireland were as follows :—

Period	Divorces	Annual Average	Per Million Population
1867–71	4	1	0.2
1872–76	13	3	0.6
1877–81	21	4	0.8
1882–86	17	3	0.6
20 years	55	3	0.5

The number of divorces compared with marriages thus :—

Period	England and Wales		
	Marriages	Divorces	Divorces per 1000 Marriages
1867–71	905,000	724	0.8
1872–76	1,012,000	1,050	1.0
1877–81	955,000	1,743	1.8
1882–86	1,009,000	1,891	1.9
20 years	3,881,000	5,408	1.4

Period	Scotland		
	Marriages	Divorces	Divorces per 1000 Marriages
1867–71	115,000	177	1.5
1872–76	131,000	220	1.7
1877–81	125,000	337	2.7
1882–86	128,000	390	3.1
	490,000	1,124	2.2

Period	Ireland		
	Marriages	Divorces	Divorces per 1000 Marriages
1867–71 . . .	142,000	4	0.03
1872–76 . . .	126,000	13	0.10
1877–81 . . .	116,000	21	0.18
1882–86 . . .	108,000	17	0.16
20 years . . .	492,000	55	0.11

UNITED KINGDOM

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71	1,162,000	905	0.8
1872–76	1,269,000	1,283	1.0
1877–81	1,196,000	2,101	1.7
1882–86	1,245,000	2,298	1.8
20 years	4,872,000	6,587	1.3

FRANCE

The number of divorces and judicial separations, according to Bertillon, compares with marriages thus :—

Period	Divorces	Marriages	Per 10,000 Marriages	Divorce Yearly	Per Million Pop.
1802–10	4,853	2,029,000	23	539	20
1811–19	1,561	2,136,000	7	173	6
1820–29	2,730	2,411,000	11	273	9
1830–40	5,173	3,013,000	17	470	14
1841–50	7,687	2,800,000	27	769	22
1851–60	12,835	2,878,000	44	1,284	35
1861–70	19,884	2,942,000	66	1,988	52
1871–80	22,817	2,952,000	76	2,282	60
1881–86	20,608	1,704,000	121	3,435	90
85 years	98,148	22,865,000	43	1,154	38

The following table shows the number of petitions for divorce compared with the divorces granted from 1841 to 1880 :—

Period	Petitions	Granted	Ratio Granted per Cent.	Percentage of Application	
				By Husband	By Wife
1841–50	10,620	7,687	72	7	93
1851–60	17,210	12,835	74	9	91
1861–70	26,140	19,884	76	11	89
1871–80	29,550	22,817	77	13	87

The various causes alleged in petitions for divorce were :—

	1841–50	1851–60	1861–70	1871–80	40 Years
Cruelty . .	9,720	15,690	24,840	28,500	78,750
Adultery .	655	1,170	1,005	735	3,565
Various . .	245	350	295	315	1,205
Total	10,620	17,210	26,140	29,550	83,520

In several cases there were double charges and cross-bills, which makes the above classification difficult.

Altogether the charges and cross-charges of adultery in forty years were as follows :—

Period	Alleged Adultery Committed by			Yearly Average
	Husband	Wife	Total	
1841–50 . .	565	525	1,090	109
1851–60 . .	910	1,135	2,045	204
1861–70 . .	870	1,485	2,355	236
1871–80 . .	870	1,530	2,400	240
40 years . .	3,215	4,675	7,890	197

The occupations of persons applying for divorce were :—

	1841-50	1851-60	1861-70	1871-80	40 Years
Professions .	3,245	4,280	4,900	4,890	17,315
Merchants .	2,195	3,490	5,385	5,110	16,180
Farmers . .	1,840	2,690	3,670	3,860	12,060
Labourers .	2,380	6,050	10,550	13,015	31,995
Various . .	960	700	1,635	2,675	5,970
Total .	10,620	17,210	26,140	29,550	83,520

The condition of the parents, as to with or without children, was as follows :—

Period	Had Children	Had None	Not Known	Total	Ratio with Children
					Per Cent.
1841–50 .	5,910	3,850	860	10,620	56
1851–60 .	10,150	6,660	400	17,210	59
1861–70 .	16,440	9,610	90	26,140	63
1871–80 .	18,750	10,800	...	29,550	64
40 years .	51,250	30,920	1,350	83,520	62

The number of marriages and that of divorces compared thus :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71 . . .	1,391,000	9,850	7.1
1872–76 . . .	1,569,000	11,384	7.3
1877–81 . . .	1,403,000	13,132	9.4
1882–86 . . .	1,422,000	22,750	16.0
20 years . .	5,785,000	57,116	9.9

The French Government published a table of divorces granted in five years ending December 1889, in all 15,521, viz. :—

	Number	Annual Average
Paris	4,607	921
Towns	7,047	1,410
Rural districts	3,867	773
Total . .	15,521	3,104

The ages of the divorced persons in the said five years were :—

Age	Men	Women	Total	Ratio
Under 25	198	1,313	1,511	4.9
25–35	3,926	6,096	10,022	32.2
35–40	3,669	3,155	6,824	22.0
40–50	4,696	3,331	8,027	25.9
Over 50	3,032	1,626	4,658	15.0
Total . .	15,521	15,521	31,042	100.0

Petition by husband	8,621	For adultery . . .	6,980
Petition by wife . .	6,900	Other causes . . .	8,541
Total . .	15,521	Total . .	15,521

The returns for Paris in twenty years to December 1886 were :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71 . . .	69,000	2,148	31.1
1872–76 . . .	96,000	2,733	28.4
1877–81 . . .	96,000	3,177	33.0
1882–86 . . .	103,000	3,228	31.3
20 years . . .	364,000	11,286	30.9

In 1889 there were in France 23 divorces in 10,000 couples, and at Paris 100. The mean duration of the dissolved marriages was 15 years in 1884, and fell to 13 years in 1889.

GERMANY

The returns are incomplete, and may be summed up thus :—

	1867–71	1872–76	1877–81	1882–86	20 Years
Prussia . .	...	...	...	17,450	...
Bavaria . .	1,400	1,170	...	1,189	...
Saxony . .	2,342	3,234	3,535	4,526	13,637
Wurtemburg	518	593	609	707	2,427
Baden . .	170	305	396	522	1,393
Hesse . .	159	189	225	321	894
Alsace . .	...	...	398	629	...
Hamburg .	...	...	...	1,115	...
Other States	...	...	...	2,681	...
Total .	...	...	...	29,140	...

If the ratio for Prussia be supposed to have been the same as regards the whole of Germany in previous periods as in the years 1882–86, namely, 60 per cent., and the minor States, for which we have no returns, in like manner, the whole number of divorces for Germany will stand thus :—

	1867–71	1872–76	1877–81	1882–86	20 Years
Prussia . .	11,070	13,251	14,486	17,450	56,257
Bavaria . .	1,400	1,170	1,253	1,189	5,012
Saxony . .	2,342	3,234	3,535	4,526	13,637
Wurtemburg	518	593	609	707	2,427
Baden . .	170	305	396	522	1,393
Small States	2,950	3,532	3,864	4,746	15,092
Total .	18,450	22,085	24,143	29,140	93,818

According to the Census of 1880, the number and ratio of divorced persons living in the various States was as follows :—

	Number	Per 100,000 Inhabitants		Number	Per 100,000 Inhabitants
Prussia . .	37,162	135	Baden . .	825	55
Saxony . .	8,121	270	Hesse . .	612	65
Wurtemburg	3,637	184	Brunswick .	558	160
Bavaria . .	3,108	60	Weimar . .	589	190
Hamburg .	2,883	634	Various . .	3,208	107
Alsace . .	1,359	85	All Germany	62,062	136

The comparison between marriages and divorces in the various States during the five years ending 1886 showed thus :—

	Marriages	Divorces	Divorces per 1000 Marriages
Prussia	1,126,000	17,450	15.5
Bavaria	204,000	1,189	5.9
Saxony	142,000	4,526	32.0
Wurtemburg . .	64,000	707	11.0
Baden	53,000	522	9.8
Hesse	34,000	321	9.4
Alsace	52,000	629	12.1
Hamburg . . .	22,000	1,115	50.7
Various	109,000	2,681	24.5
Total . .	1,806,000	29,140	16.2

The following table compares marriages and divorces for all Germany :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71	1,756,000	18,450	10.5
1872–76	1,994,000	22,085	11.0
1877–81	1,701,000	24,143	14.2
1882–86	1,805,000	29,140	16.2
20 years	7,256,000	93,818	13.0

At Berlin the number of marriages and of divorces in twenty years showed as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71	42,000	1,988	47.0
1872–76	64,000	2,360	36.8
1877–81	53,000	2,574	48.5
1882–86	66,000	3,830	58.1
20 years	225,000	10,752	47.7

Berlin divorces in the five years ending 1884 showed thus :—

Cause		Husband's Occupation		Religion	
Adultery .	1,071	Merchants .	688	Protestants	2,585
Desertion .	817	Artisans .	1,033	Catholics .	64
Mutual consent }	746	Labourers .	713	Jews . . .	97
Various . .	533	Various . .	733	Various . .	421
Total .	3,167	Total .	3,167	Total .	3,167

Of the above couples 45 per cent. had children, 55 per cent. had none.

Returns for Saxony, covering 14 years down to 1879, give the mean duration of marriages dissolved by divorce as follows :—

Years	Number	Ratio	Cause	13 Years
Under 5 . .	2,737	33.7	Adultery	2,571
5–10 . . .	2,454	30.2	Desertion	2,273
10–20 . .	2,289	28.2	Cruelty	1,807
Over 20 . .	636	7.9	Various	774
Total .	8,116	100.0	Total	7,425

ITALY

The returns for 14 years ending 1879 may be summed up thus :—

Petition by		Cause		Result	
Husband	. 1,269	Cruelty	. 4,462	Granted .	6,056
Wife .	. . 4,945	Desertion .	1,835	Withdrawn	4,173
Both .	. . 5,217	Adultery .	982	Disallowed	1,202
		Various .	4,152		
Total .	11,431			Total .	11,431
		Total .	11,431		

Marriages and divorces compared as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1869–73 . . .	1,004,000	3,141	3.1
1879–81 . . .	640,000	1,917	3.0
1882–85 . . .	929,000	1,632	1.7
12 years . . .	2,573,000	6,690	2.5

AUSTRIA

Marriages and divorces compared as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1872–76 . . .	932,000	690	0.7
1877–81 . . .	839,000	808	1.0
1882–86 . . .	893,000	856	1.0
15 years . . .	2,664,000	2,354	0.9

The returns for Vienna showed as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1872–76	33,000	689	21
1877–81	27,000	708	26
1882–86	33,000	1,069	32
15 years . . .	93,000	2,466	26

HUNGARY

Marriages and divorces compared as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1877–81	754,000	5,246	7.0
1882–86	825,000	4,835	5.9
10 years . . .	1,579,000	10,081	6.4

The returns for Buda-Pesth showed thus :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1877–81	13,000	91	7.0
1882–86	19,000	129	6.8
10 years . . .	32,000	220	6.9

ROUMANIA

The returns are to the following effect :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1871–75	157,000	1,560	9.9
1876–80	182,000	1,932	10.6
10 years . . .	339,000	3,492	10.3

RUSSIA

The returns of marriages and divorces in the Greek Church were as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71 . . .	2,832,000	3,910	1.4
1872–76 . . .	3,031,000	4,322	1.4
1877–81 . . .	2,846,000	4,705	1.7
1882–86 . . .	3,111,000	5,474	1.8
20 years . . .	11,820,000	18,411	1.5

Those in the Protestant congregations were as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71	104,000	687	6.5
1872–76	116,000	773	6.7
1877–81	115,000	778	6.8
1882–86	129,000	870	6.7
20 years . . .	464,000	3,108	6.7

The returns for Poland showed as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71 . . .	176,000	809	4.6
1872–76 . . .	208,000	1,073	5.2
1877–81 . . .	262,000	1,432	5.5
1882–86 . . .	308,000	1,725	5.6
20 years . . .	954,000	5,039	5.3

The returns for Finland are as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1877–81 . . .	76,000	238	3.2
1882–86 . . .	81,000	219	2.7

The gross total for European Russia was as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71 . . .	3,112,000	5,406	1.7
1872–76 . . .	3,355,000	6,168	1.8
1877–81 . . .	3,299,000	7,153	2.2
1882–86 . . .	3,629,000	8,288	2.3
20 years . . .	13,395,000	27,015	2.0

The causes for divorces granted in the Greek Church were :—

	1866–75	1876–85	20 Years	Ratio
Adultery . .	426	1,302	1,728	9.3
Exile	1,541	2,745	4,286	23.2
Disappearance	5,872	5,606	11,478	62.3
Sterility . . .	70	178	248	1.3
Consanguinity	100	85	185	1.0
Bigamy . . .	223	304	527	2.9
Total .	8,232	10,220	18,452	100.0

Marriages and divorces in Poland, according to creed, were :—

	Marriages			Divorces			Divorces per 1000 Marriages		
	1867–76	1877–86	Total	1867–76	1877–86	Total	1867–76	1877–86	Total
Roman Catholics .	343,000	501,000	844,000	330	340	670	1.0	0.7	0.8
Protestants . . .	30,000	37,000	67,000	170	205	375	5.7	5.5	5.6
Jews, &c. . . .	11,000	32,000	43,000	1,382	2,612	3,994	125.6	81.5	92.8
Total . .	384,000	570,000	954,000	1,882	3,157	5,039	4.9	5.5	5.3

DENMARK

The returns are as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1871–76	89,000	3,156	35.3
1877–81	75,000	3,046	40.6
11 Years	164,000	6,202	37.5

NORWAY

The returns of marriages and divorces show thus :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1872–76	67,000	162	2.4
1877–81	65,000	195	3.0
1882–84	39,000	120	3.1
13 Years	171,000	477	2.8

SWEDEN

The number of marriages and of divorces was as fol-
lows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71	124,000	619	5.0
1872–76	154,000	953	6.2
1877–81	146,000	1,053	7.2
1882–86	149,000	1,109	7.4
20 years	573,000	3,734	6.5

The returns for Stockholm were as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71	4,810	146	30.2
1872–76	6,930	190	27.4
1877–81	7,512	285	38.0
1882–86	9,280	306	32.8
20 years	28,532	927	32.5

The causes of divorce in Sweden were as follows :—

Causes					Number	Ratio
Adultery	.	.	.	.	537	. 14.4
Desertion	.	.	.	.	2,195	. 58.6
Various	.	.	.	.	1,002	. 27.0
		Total	.	.	3,734	100.0

The above is the aggregate for twenty years ending
1886.

BELGIUM

The number of marriages and of divorces was as fol-
lows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1831–40	302,000	135	0.4
1841–50	290,000	224	0.8
1851–60	335,000	412	1.2
1861–70	363,000	866	2.4
1871–80	389,000	1,923	4.9
1881–86	237,000	1,785	7.5
56 years	1,916,000	5,345	2.8

In order to compare Belgium with the other countries
in the twenty years ending 1886, the following table will
be useful :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71	185,000	620	3.4
1872–76	198,000	899	4.5
1877–81	192,000	1,189	6.2
1882–86	197,000	1,501	7.6
20 years	772,000	4,209	5.5

By the Census of 1880 it appeared that 43 persons per
100,000 of the population were divorced, viz., 1028 men
and 1347 women. The growth of divorce, especially in
cities, appears as follows ; the Belgian cities included
below are Brussels, Antwerp, Ghent, and Liege :—

Year	Cities			All Belgium		
	Marriages	Divorces	Divorces per 1000 Marriages	Marriages	Divorces	Divorces per 1000 Marriages
1870	4,735	41	8.9	35,300	81	2.3
1875	5,337	64	12.0	39,050	126	3.2
1880	5,219	102	19.6	38,900	214	5.5
1885	5,503	129	23.5	39,900	230	5.8

HOLLAND

Marriages and divorces during twenty years were
thus :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71	144,000	699	4.8
1872–76	157,000	811	5.2
1877–81	153,000	1,161	7.6
1882–86	150,000	1,571	10.5
20 years	604,000	4,242	7.0

SWITZERLAND

The marriages and divorces were as follows :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1877–81	101,000	4,811	47.6
1882–86	100,000	4,588	45.9
10 years	201,000	9,399	46.7

The returns of age were in 1880 as follows :—

Years	Husband	Wife	Total	Ratio
Under 30 . . .	144	217	361	21.1
30–40	302	287	589	34.5
40–50	211	178	389	22.7
Over 50	199	174	373	21.7
Total . .	856	856	1,712	100.0

The occupations of persons divorced are shown thus :—

	Per Million Inhabitants
Agriculturists	190
Mechanics	510
Merchants	620

The duration of marriage was as follows :—

Years	Marriages	Ratio
Under 2	81	9.5
2–5	220	25.4
5–10	230	27.0
10–20	235	27.6
Over 20	90	10.5
Total . .	856	100.0

Youthful marriages seem most exposed to divorce, the ratios being as follows :—

Marrying Age	Divorces per 10,000 Marriages
Under 20	620
20–40	330
Over 40	320

UNITED STATES

The following table compares marriages with divorces in the only States in which the former are fully reported, viz. :—Connecticut, District of Columbia, Massachusetts, Ohio, Rhode Island, and Vermont :—

Period	Aggregate of Six States		
	Marriages	Divorces	Divorces per 1000 Marriages
1867–71 . . .	258,000	10,753	41
1872–76 . . .	261,000	12,577	48
1877–81 . . .	263,000	13,929	53
1882–86 . . .	296,000	16,308	55
20 years* . .	1,078,000	53,567	50

* The ratio of divorces to marriages in the United States may be estimated from the above six States, which, during twenty years, had a marriage-rate of 9 per 1000 inhabitants.

The several States in their aggregate returns for twenty years showed as follows :—

	Marriages	Divorces	Divorces per 1000 Marriages
Connecticut . .	97,000	8,542	88
District of Columbia	24,000	1,105	45
Massachusetts .	308,000	9,853	32
Ohio . .	544,000	26,367	48
Rhode Island . .	50,000	4,462	89
Vermont . .	55,000	3,238	59
Total . .	1,078,000	53,567	50

The number of divorces yearly compared with the mean population of the great sections of the United States was approximately as follows :—

States	Divorces Yearly per 100,000 Population				
	1867–71	1872–76	1877–81	1882–86	20 Years
N. England	52	54	53	52	53
Middle . .	17	15	16	19	17
South . .	13	17	24	31	24
West . . .	43	50	54	65	60
The Union .	30	32	35	42	36

The figures for twenty years will, therefore, stand thus :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71	1,710,000	53,574	31.3
1872–76	1,980,000	68,547	34.6
1877–81	2,210,000	89,284	40.4
1882–86	2,430,000	117,311	48.3
20 years . . .	8,330,000	328,716	39.5

The causes for divorces granted were as follows :—

Cause	Summary of Divorces Granted			Ratio
	To Husband	To Wife	Total	
Adultery	38,184	29,502	67,686	20.6
Cruelty	6,122	45,473	51,595	15.7
Desertion . . .	51,485	75,191	126,676	38.5
Drunkenness . .	1,434	12,432	13,866	4.3
Neglect	7,426	40,374	47,800	14.5
Various	7,889	13,204	21,093	6.4
Total . .	112,540	216,176	328,716	100.0

The average duration of marriage before divorce was :—

Cause	Years of Marriage before Divorce Granted		
	To Husband	To Wife	Total
Adultery . . .	7.8	9.5	8.6
Cruelty	9.8	9.2	9.3
Desertion . . .	9.8	9.2	9.4
Drunkenness . .	10.9	11.0	11.0
Neglect	8.7	9.3	9.2
Various	7.6	7.2	7.4
All causes . . .	9.0	9.3	9.2

The number of divorces compared with the medium population of each State in 1870-80 thus :—

	Number of Divorces					Yearly Average per 100,000 Pop.
	1867–71	1871–76	1877–81	1881–86	Twenty Years	
Maine	1,948	2,101	2,511	1,852	8,412	67
New Hampshire	781	1,173	1,392	1,633	4,979	75
Vermont	830	851	798	759	3,238	50
Rhode Island	938	1,030	1,197	1,297	4,462	89
Connecticut	2,314	2,319	1,923	1,986	8,542	74
Massachusetts	1,781	2,448	2,624	3,000	9,853	30
New England	8,592	9,922	10,445	10,527	39,486	53
New York	3,755	3,224	3,617	4,759	15,355	16
New Jersey	390	528	652	1,072	2,642	13
Pennsylvania	3,158	3,325	4,117	5,420	16,020	21
Delaware	69	43	83	94	289	10
District of Columbia	161	318	294	332	1,105	37
Maryland	425	465	495	800	2,185	13
Middle	7,958	7,903	9,258	12,477	37,596	17
Virginia (2)	758	932	1,435	2,065	5,190	14
North Carolina	130	266	364	578	1,338	5
South Carolina	6	92	65	...	163	1
Georgia	587	893	1,025	1,454	3,959	15
Florida	198	340	625	965	2,128	48
Alabama	479	752	1,502	2,471	5,204	23
Mississippi	373	858	1,506	2,303	5,040	25
Louisiana	173	319	446	759	1,697	10
Texas	699	1,547	3,338	5,888	11,472	48
Arkansas	562	846	1,947	2,686	6,041	48
Kentucky	1,726	2,242	2,845	3,435	10,248	34
Tennessee	1,415	1,954	2,838	3,418	9,625	34
South	7,106	11,041	17,936	26,022	62,105	24
Ohio	4,729	5,611	7,093	8,934	26,367	46
Illinois	5,803	8,516	9,702	12,051	36,072	64
Missouri	2,281	3,220	4,073	5,704	15,278	38
Indiana	5,741	5,089	6,523	7,840	25,193	67
Iowa	2,838	3,509	4,614	5,603	16,564	59
Michigan	2,635	3,783	5,492	6,523	18,433	66
Wisconsin	2,006	2,146	2,484	3,352	9,988	42
Minnesota	403	659	918	1,643	3,623	30
Kansas	725	1,293	1,891	3,282	7,191	52
Nebraska	151	391	818	1,674	3,034	50
Colorado	80	338	1,005	2,264	3,687	152
California	1,288	2,553	3,400	4,877	12,118	87
Oregon	369	448	759	1,033	2,609	98
Utah	387	1,387	1,594	710	4,078	170
Nevada, Dakota, &c.	482	738	1,279	2,795	5,294	...
West	29,918	39,681	51,645	68,285	189,529	60
Total . .	53,574	68,547	89,284	117,311	328,716	36

The number of married couples and that of divorces in certain States and cities were as follows :—

States	Estimated Married Couples		Divorces		Divorces per 100,000 Couples	
	1870	1880	1870	1880	1870	1880
New York .	828,000	961,000	731	834	88	87
Pennsylvania .	666,000	809,000	623	951	93	114
Massachusetts	275,000	337,000	404	595	147	178
Illinois . . .	480,000	582,000	1,178	2,139	245	369
Ohio . . .	504,000	601,000	992	1,553	197	259
Maryland . .	148,000	177,000	84	128	56	72
Louisiana . .	137,000	178,000	30	109	22	61
Missouri . .	325,000	410,000	491	930	152	227
California . .	106,000	163,000	298	683	280	410
9 States	3,469,000	4,218,000	4,831	7,922	140	187

Cities	Estimated Married Couples		Divorces		Divorces per 100,000 Couples	
	1870	1880	1870	1880	1870	1880
New York .	178,000	228,000	265	227	150	100
Philadelphia .	127,000	160,000	124	194	97	121
Boston . . .	51,000	73,000	113	156	223	214
Baltimore . .	51,000	63,000	60	98	118	156
Washington .	25,000	34,000	39	66	156	194
New Orleans .	36,000	41,000	15	38	42	93
St. Louis . .	59,000	66,000	155	241	263	365
San Francisco .	28,000	44,000	87	242	311	550
Brooklyn . .	79,000	113,000	54	111	68	98
Cleveland . .	25,000	37,000	114	168	456	454
Memphis . .	14,000	15,000	26	61	186	406
Milwaukee .	17,000	26,000	57	104	335	400
12 cities	690,000	900,000	1,109	1,706	160	190

P

CANADA

The number of marriages is not known, but if we assume the medium rate of 8 per 1000 inhabitants (as compared with 7½ in Australia and 9 in the United States), the record will stand thus :—

Period	Marriages	Divorces	Divorces per 1000 Marriages
1867–71 . . .	31,000	15	0.5
1872–76 . . .	33,000	16	0.5
1877–81 . . .	35,000	33	0.9
1882–86 . . .	37,000	52	1.4
20 years . .	136,000	116	0.9

AUSTRALIA

The returns for five years ending 1888 were as follows :—

Colony	Marriages	Divorces	Divorces per 1000 Marriages
New South Wales .	38,400	135	3.5
Victoria . .	34,000	93	2.7
Queensland .	12,500	8	0.6
South Australia .	12,400	115	9.3
New Zealand .	20,100	72	3.6
Tasmania .	5,500	12	2.2
West Australia .	1,500	2	1.4
Total . .	124,400	437	3.5

DOCKS AND HARBOURS

The sums spent on docks and harbours in recent years are as follows :—

	£		£
Alexandria . . .	2,550,000	Glasgow . . .	7,600,000
Amsterdam . .	2,600,000	Hamburg . . .	5,500,000
Antwerp . . .	6,800,000	Havre . . .	6,400,000
Bordeaux . . .	1,700,000	Holyhead . . .	2,000,000
Boulogne . . .	1,200,000	Hull	1,200,000
Bremen . . .	1,800,000	Liverpool . . .	18,200,000
Bristol	900,000	London . . .	20,100,000
Calais	1,500,000	Marseilles . . .	3,400,000
Cette.	1,800,000	Plymouth . . .	1,550,000
Cherbourg . . .	3,500,000	Rotterdam . .	2,400,000
Dieppe	1,200,000	St. Nazaire . .	1,800,000
Dundee	800,000	Trieste	1,100,000
Dunkirk . . .	4,600,000		

The area under docks and average dues are :—

	Docks, Acres	Dock-Dues on Vessels of 1000 Tons
London	690	£125
Liverpool	560	133
Antwerp	105	93
Cardiff	113	...
Trieste	86	...

The largest lock in the world is that of Cardiff, 600 feet long by 80 feet in width ; ordinary depth of water, 36 feet.

Dock-dues in Hamburg for a vessel of 1000 tons would be £110, in Amsterdam £81. As regards length of quay-wall, Marseilles has 8 miles, Amsterdam 7, Antwerp 7, Trieste 3, Rotterdam 3, Genoa 2.

As regards warehouses, Marseilles has 20 acres, Trieste 7, Genoa 4. Depth of water in docks, 60 feet at Antwerp, 36 at Cardiff, 30 at Trieste, 25 at Amsterdam. The new dock at Barry, in the Bristol Channel, covers 70 acres, depth of water 34 feet.

The following table shows the depth of water and mileage of quay-wall at the principal French ports :—

	Feet, Water	Quay, Miles		Feet, Water	Quay, Miles
Marseilles .	23	8.3	St. Nazaire	22	2.8
Havre . .	26	8.0	Boulogne .	26	2.0
Cette . .	22	4.8	Bordeaux .	19	2.0
Dunkirk .	20	3.5	Dieppe . .	18	1.8
Rouen . .	17	3.0	Calais . .	25	1.5

The French Government has expended the following sums on the above ports :—

	£
Down to 1876	24,800,000
1876–90	22,600,000
Total . .	47,400,000

The following are some of the finest breakwaters :—

Name	Date	Yards Long	Cost, £	Builder
Plymouth .	1812–41	1,720	1,550,000	Rennie
Cherbourg	1784–1857	4,100	3,200,000	...
Delaware .	...	1,200	...	...
Alexandria	1873–76	2,000	2,550,000	Greenway

The Plymouth breakwater has the same quantity of stone, 3,800,000 tons, as the great pyramid of Cheops, and encloses 1120 acres of harbour ; Cherbourg, 1927 acres ; and Delaware, 420 acres.

DRUGS AND CHEMICALS

The British trade returns show imports under this head thus :—

	Value, £			
	1860	1870	1880	1888
Bones . . .	300,000	630,000	530,000	390,000
Caoutchouc .	470,000	1,600,000	2,400,000	2,600,000
Chemicals, sundry .	...	530,000	1,140,000	1,300,000
Chinchona .	...	...	1,180,000	550,000
Cinnamon .	50,000	250,000	100,000	40,000
Cochineal .	410,000	580,000	430,000	50,000
Cutch . . .	220,000	470,000	660,000	710,000
Drugs, various	...	310,000	670,000	900,000
Dye-woods and extracts	240,000	280,000	2,030,000	2,120,000
Esparto . .	...	...	1,640,000	2,300,000
Guano . .	1,560,000	3,480,000	810,000	200,000
Gum . . .	...	...	1,120,000	1,140,000
Gutta-percha	160,000	500,000	530,000	180,000
Indigo . .	2,530,000	2,720,000	1,710,000	1,700,000
Madder . .	690,000	430,000	...	...
Nitre . . .	500,000	880,000	700,000	980,000
Opium . .	...	...	360,000	360,000
Paints . .	...	...	820,000	900,000
Pepper . .	240,000	420,000	400,000	920,000
Rosin . . .	180,000	370,000	340,000	270,000
Saltpetre . .	660,000	380,000	300,000	300,000
Shumach .	170,000	230,000	150,000	140,000
Sulphur . .	500,000	390,000	250,000	170,000
Turpentine .	220,000	130,000	380,000	520,000
Valonia . .	270,000	400,000	520,000	460,000
Yeast . . .	180,000	290,000	540,000	730,000
Total .	9,550,000	15,270,000	19,710,000	19,930,000

The exports show as follows :—

	Value, £			
	1860	1870	1880	1888
Alkali	960,000	1,490,000	2,400,000	1,640,000
Bleaching materials . }	...	...	440,000	620,000
Caoutchouc . .	140,000	550,000	1,060,000	1,340,000
Chemicals, sundries . . . }	...	1,330,000	2,380,000	2,400,000
Chinchona . .	210,000	120,000	610,000	340,000
Cinnamon . .	50,000	170,000	80,000	40,000
Cochineal . . .	300,000	320,000	280,000	30,000
Cutch	...	...	210,000	250,000
Drugs, sundry .	590,000	170,000	510,000	370,000
Gum	...	...	630,000	640,000
Gunpowder . .	350,000	430,000	370,000	360,000
Indigo	1,900,000	1,600,000	1,300,000	1,100,000
Medicine . . .	...	...	810,000	930,000
Opium	...	200,000	190,000	330,000
Paints	...	880,000	1,160,000	1,450,000
Pepper	170,000	260,000	240,000	590,000
Total .	4,670,000	7,520,000	12,670,000	12,430,000

Alkali.—The annual production in 1882 was as follows :—

	Tons
Great Britain	432,000
France	127,000
Germany	101,000
Austria	40,000
Belgium, United States, &c. . .	11,000
Total . . .	711,000

The production in Great Britain has quadrupled since 1850, when it was 104,000 tons. The exportation from Great Britain showed the following quantities and prices:—

Year	Tons	Value, £ per Ton
1853	53,000	9.0
1860	102,000	9.5
1870	193,000	8.0
1880	344,000	7.0
1888	317,000	5.1

Arsenic.—In Styria in 1875 two men were seen to eat 30 centigrammes of yellow arsenic without injury.

Blacking.—For boots. The consumption in England in 1880 amounted to a value of £560,000.

Chinchona or Peruvian Bark.—The annual production was in 1882 as follows :—

	Lbs.
Peru	8,900,000
India	2,200,000
Java	110,000
Jamaica	21,000
Total .	11,231,000

The Indian plantations showed as follows in 1880 :—

	Planted	Locality	Trees	Crops, Lbs. Bark
A.D.				
1860 . .	Nilghiri	540,000	180,000
1861 . .	Darjeeling . . .	4,680,000	378,000
1869 . .	Ceylon	77,000,000	1,260,000
1875	Burmah	2,000	200
	Total . .	82,222,000	1,818,200

The exports from Ceylon rose very rapidly, viz. :—

	Lbs.
1880	1,260,000
1884	11,000,000
1886	15,000,000
1888	11,000,000

Indian bark yields from 4 to 5 per cent. of sulphate of quinine, but the superior quality introduced into Java by Mr. Charles Ledger gives from 6 up to 15 per cent. The plantations in India and Ceylon are valued at 5 millions sterling. Some Germans have planted near La Paz, Bolivia, 600,000 trees of the Ledger or Caupolican species.

The quantities of bark imported into Great Britain have been as follows :—

Year	Tons	Value per Ton, £	Net Imports, Tons
1874 . . .	2,100	210	400
1880 . . .	4,000	300	1,600
1888 . . .	7,200	76	1,000

The manufacture of quinine in 1879 was, according to the Archivio, as follows :—

	Lbs.		Lbs.
East Indies .	11,000	Germany . .	55,000
England . .	26,000	Italy . .	44,000
France . .	40,000	America . .	60,000

Making a total of 236,000 lbs., which was only 2 per cent. on the crop of bark.

Cochineal.—Canary Islands exported in 1880 three million lbs., valued at £350,000.

Dynamite.—Messrs. Nobel of Glasgow make 1200 tons yearly.

Glycerine.—Production in 1880 :—

	Tons		Tons
England . . .	300	Russia . .	900
France . . .	4,000	Belgium . .	800
Germany . .	1,500	Italy . . .	400
Holland . .	900	Spain . . .	200

Guano.— The Peruvian Government exported from the Chincha Islands between 1850 and 1880 more than 12 million tons, worth 110 millions sterling. Great Britain paid 55 millions for 5,200,000 tons since 1855. The first quantity exported to Europe was in 1840. The supply is now almost exhausted. The analysis is as follows :—

Azote	52.5
Phosphate of lime . .	19.3
Alkali	7.6
Water	15.8
Sundry	4.8
Total . . .	100.0

Gunpowder

	Saltpetre	Charcoal	Sulphur	Total
English . . .	75	15	10	100
French	75	13	12	100
German . . .	75	11	14	100
Russian . . .	74	14	12	100
Austrian . . .	72	17	11	100
Spanish . . .	76	11	13	100
Swedish . . .	75	16	9	100
Chinese . . .	76	14	10	100
American . . .	75	13	12	100
Sporting . . .	77	13	10	100

The quantities exported from Great Britain, and the price per ton were :—

Year	Tons	Value, £ per Ton
1853	4,200	55
1860	5,000	70
1870	7,800	55
1880	6,700	55
1888	6,000	60

India-rubber.—This is mostly obtained from the Seringueros of the Amazon, who sell it for sixpence a pound to the merchants of Para, but its value on reaching England or United States is over two shillings a pound. The quantities imported into Great Britain and United States have been as follows :—

Into	Tons Imported			
	1860	1870	1880	1887
Great Britain . .	2,150	7,606	8,479	11,800
United States . .	1,610	4,316	7,529	12,900
Total .	3,760	11,922	16,008	24,700
Value per ton . .	£224	£215	£277	£215

The best rubber-forests in Brazil will ultimately be exhausted, owing to the reckless mode followed by the Seringueros or tappers. The ordinary product of a tapper's work is from 10 to 16 lbs. daily. A tree 15 inches diameter bled 8 feet high will yield 3 pints of milk. There are 120 india-rubber manufacturers in the United States, employing 15,000 operatives, who produce 280,000 tons of goods, valued at 52 millions sterling per annum.

Madder.—The best is grown near Avignon, on irrigated lands, for which the tenants pay £5 an acre rent. Average crop, 2 tons per acre, worth £50, leaving small profit to the cultivator.
Official returns of this crop in France are as follows :—

Year	Acres	Tons
1840	36,000	25,000
1862	51,000	54,000
1874	12,500	17,300

It gives 9 per cent. of ashes, of which 4 per cent. soluble salts and 3½ per cent. carbonate of lime.

Maqui.—This berry is grown in Chili for colouring wine. Exports thus :—

	Tons
1887	26
1888	431

France takes 75 per cent. of the total.

Nitre.—Atacama (Chile) exports 350,000 tons per annum. The nitre is about 2 feet below the surface ; one bed covers 5000 acres, 4 feet in thickness, say 25 million tons, worth 300 millions sterling. The quantities imported into Great Britain and the value per ton were :—

Year	Tons	Value, £ per Ton
1853	17,000	20
1860	37,000	14
1870	57,000	15
1880	46,000	15
1888	103,000	10

It is also called nitrate of potash.
Chili, in 1889, exported 930,000 tons valued at £7,800,000, or £8 per ton.

Opium.—Annual shipments from India :—

Years	Chests	Tons	Value	Per Ton
			£	£
1861–65	73,100	4,305	10,810,000	2,510
1866–70	82,800	4,870	11,240,000	2,290
1871–75	89,200	5,250	11,790,000	2,250
1876–80	102,100	6,005	12,640,000	2,106
1881–86	90,200	5,400	11,800,000	2,180
1887–88	93,000	5,600	10,600,000	1,900

The Chinese impose a duty of £5 per ton. It is retailed at 2s. per ounce, or double the price of native opium. The province of Hankow produces 5300 tons per annum. There are in China 3 million opium-smokers. The average importation yearly into Great Britain shows :—

Year	Imported	Re-Shipped	Home Use
	Tons	Tons	Tons
1875–80	220	115	105
1881–85	290	170	120
1886–88	270	185	85

The cultivation in India gives an average crop of 30 lbs. per acre, value £100.

DRUNKENNESS

The returns of insanity caused by drunkenness, and those of suicide from the same cause, in various countries show :—

Insanity		*Suicide*	
England . .	14 per cent.	England . .	12 per cent.
Ireland . .	12 ,,	France . . .	12 ,,
France . . .	14 ,,	Prussia . .	14 ,,
Prussia . . .	10 ,,	Oldenburg . .	17 ,,
Denmark . .	11 ,,	Saxony . . .	9 ,,
Finland . . .	12 ,,	Belgium . .	8 ,,
Norway . . .	20 ,,	Russia . . .	38 ,,
Holland . .	16 ,,	Baden . . .	6 ,,
Austria . . .	14 ,,	Europe . .	15 ,,

Kaspar considers that the official returns are much too low, and estimates that 25 per cent. of suicides in Germany are produced by drunkenness.
The increase of alcoholic insanity and suicide in France is remarkable, viz. :—

Period	Ratio of Dipsomaniacs (France)	
	Per 1000 Insane	Per 1000 Suicides
1840–49 . . .	78	67
1861–70 . . .	108	130
1871–80 . . .	148	113
1881–85 . . .	144	120

In France drunkenness and alcoholic insanity have progressed with the consumption of spirits, the average of which is now three times as much per head as in 1840–42. See *Alcohol*, p. 59.
Drunkenness as a cause of insanity and of suicide is much commoner among men than women, viz. :—

Males to Females		*Males to Females*	
England . . .	75–25	Austria . . .	89–11
France . . .	74–26	Denmark . .	82–18
Prussia . . .	88–12	Oldenburg .	85–15
Belgium . . .	72–28	General average	80–20

Of insane males in Italy, 12 per cent. are caused by drink ; in United States, 26 per cent. ; and in Scotland, 28 per cent.

DEATHS FROM DRINK YEARLY

	Number	Per 1000 Deaths of Population	Per Million Inhabitants
England . . .	1,082	2.04	40
Scotland . . .	230	3.29	60
Ireland	280	2.78	56
United Kingdom	1,592	2.27	43
France	872	1.05	23
Germany . . .	3,240	2.70	70
Belgium . . .	456	3.83	80
Sweden	502	6.25	106
Norway . . .	72	2.36	40
Switzerland . .	244	3.81	85
Italy	709	0.85	24

Deaths from drink in New York are said to average 12 per 1000 of the total, that is, five times more numerous than in the United Kingdom.

YEARS OF INTEMPERANCE TO PRODUCE DEATH

Class						Liquor				
Women	.	.	.	14		Beer	.	.	.	22
Gentlemen	.	.	.	15		Spirits	.	.	.	17
Working class	.	.	18			Mixed	.	.	.	16

This shows that the working class can stand drink longest, and that beer is the least deadly form of intemperance.

RATIO OF DRUNKENNESS TO POPULATION.

The number of drunkards fined yearly per 1000 inhabitants in some of the large towns of the United Kingdom is as follows (1880-84) :—

Belfast .	.	.	21	Glasgow	. .	38	Dublin. . .	43
Manchester	.	31	Liverpool.	.	42	Cork	. . .	56

The prevalence of drunkenness in the rural districts is much less than in towns, the general average of persons fined in England being about 6 per 1000 of the population,* viz. :—

Year				Persons Fined	Per 1000 Inhabitants
1860	.	.	.	. 88,400	4.4
1870	.	.	.	. 137,200	6.0
1881	.	.	.	. 174,500	6.7
1888	.	.	.	. 166,300	6.0

* As the same person will be fined probably ten times in the year, it may be assumed that drunkards are not 6 per 1000, but 6 in 10,000 of the population.

In 1880 there were 61,000 persons fined in France for drunkenness, say 1.7 per 1000 inhabitants, or one-fourth of the ratio in England.

DRUNKENNESS AND CRIME

According to the *Dict. des Sciences Medicales* the proportion of crime caused by habits of intemperance is as follows :—

			Per Cent.				Per Cent.
England	.	.	43	Germany	.	.	44
Belgium	.	.	80	Denmark	.	.	74
Sweden	.	.	31	General average	.	54

In Denmark 23 per cent. of divorces originate in habits of intemperance.

VALUE OF LIFE, DRUNK AND SOBER

Age						Expectancy of Years	
						Drunk	Sober
20	.	.	.	.	.	15	44
30	.	.	.	.	.	14	36
40	.	.	.	.	.	11	29

In a period of 35 years down to 1874, the United Kingdom Assurance Company issued 25,500 policies in two distinct sections, temperance and general. The number of insured persons who died, compared with those expected to die by the actuaries, were :—

Section				Expected to Die	Died
Temperance	.	.	.	2,644	1,861
General	.	.	.	4,408	4,339

This would seem to indicate that "teetotallers" and blue-ribbon men live 17 years longer than others.

DWARFS

Name	Height (Inches)	Date of Birth	Birthplace
Borowlaski	39	1739	Warsaw
Tom Thumb . . .	31	1838	New York
Mrs. T. Thumb . .	32	1842	,,
Che-Mah	25	1838	China
Lucia Zarate . . .	20	1863	Mexico
General Mite . . .	21	1864	New York

Count Borowlaski was a friend of George III., and one of the most accomplished men in London society. Tom Thumb's real name was Charles Stratton

E.

EARTH

The area and cubic contents, according to Murray (*Challenger* expedition), are shown thus :—

					Area, Square Miles	Cubic Miles
Land	.	.	.	.	51,410,700	21,923,200
Water	.	.	.	.	137,199,000	323,722,000
	Total	.	.		188,609,700	345,645,200

The mean height of the land has been stated thus :—

FEET OVER SEA-LEVEL

	Humboldt	Lapparent	Murray	Tillo
Europe	672	958	939	1,046
Asia	1,151	2,884	3,189	3,160
North America .	748	1,952	1,888	2,052
South America . .	1,132	1,762	2,078	2,036
Africa.	...	1,975	2,021	2,020
Australia	...	1,188	805	790
Mean	1,007	2,120	2,252	2,290

The elevation of the various continents is as follows :—

	Square Miles					Mean Height in Feet
	Under 600 Feet	600 to 1500 Feet	1500 to 3000 Feet	Over 3000 Feet	Total	
Europe	2,040,600	991,800	362,000	275,700	3,670,100	939
Asia	4,049,500	2,603,700	3,551,900	6,163,400	16,368,500	3,189
Africa	1,410,100	3,859,800	3,066,200	2,756,700	11,092,800	2,021
North America	2,466,200	2,450,600	1,015,900	1,690,400	7,623,100	1,888
South America	2,725,600	1,842,800	1,151,000	1,142,000	6,861,400	2,078
Australia	896,300	1,935,700	123,900	58,200	3,014,100	805
Islands	476,400	600,000	611,500	1,092,800	2,780,700	2,387
The world	14,064,700	14,284,400	9,882,400	13,179,200	51,410,700	2,252

The cubic contents and area of the various oceans and seas, according to Murray's measurement (*Challenger* expedition), are shown thus :—

	Depth, Feet		Cubic Miles	Square Miles	Ratio	
	Greatest	Mean			Cubic Measure	Area
North Atlantic	27,366	12,810	34,804,000	14,343,000	10.8	10.4
South Atlantic	18,600	14,250	27,510,000	10,193,000	8.5	7.4
Arctic Ocean	9,000	3,780	3,418,000	4,781,000	1.1	3.5
Norwegian Sea	12,030	5,448	1,162,000	1,127,000	0.3	0.9
Caribbean Sea	19,014	7,614	1,675,000	1,161,000	0.5	0.9
Gulf of Mexico	12,714	4,632	628,000	716,000	0.2	0.6
Mediterranean	12,900	4,608	710,000	813,000	0.2	0.6
Black Sea	6,420	2,472	65,000	139,000	...	0.1
Baltic	2,580	342	13,000	196,000	...	0.2
North Pacific	30,000	15,420	77,994,000	26,705,000	24.1	19.4
South Pacific	19,830	14,208	63,522,000	23,604,000	19.6	17.2
China Sea	13,200	3,228	835,000	1,367,000	0.3	1.0
Behring Sea	9,000	3,816	622,000	859,000	0.2	0.6
Indian Ocean	18,582	13,716	44,377,000	17,084,000	13.7	12.4
Red Sea	7,200	2,250	68,000	159,000	...	0.1
Southern Ocean	25,200	12,020	64,875,000	30,592,000	20.1	22.3
Other seas	25,200	4,800	1,434,000	3,360,000	0.4	2.4
	...	...	323,722,000	137,199,000	100.0	100.0

According to Tillo, the mean depth of the ocean is 12,550 feet.

The area and cubic contents of the continents show thus :—

	Sq. Miles	Cubic Miles	Superficial Ratio	Cubic Ratio
Europe	3,670,100	652,800	7.2	3.0
Asia	16,368,500	9,887,000	31.8	45.2
Africa	11,092,800	4,246,400	21.6	19.3
N. America	7,623,100	2,725,500	14.7	12.4
S. America	6,861,400	2,699,900	13.4	12.3
Australia	3,014,100	459,400	5.8	2.1
Islands	2,780,700	1,252,200	5.5	5.7
Total	51,410,700	21,923,200	100.0	100.0

The depth of the minor seas is shown thus :—

	Average, Feet		Maximum, Feet
Irish Sea	240	...	710
English Channel	110	...	300
Levant	72	...	...
Adriatic	45	...	...

EARTHQUAKES

Since the beginning of the eighteenth century the most destructive have been the following :—

Year	Place	Lives Lost
1703	Yeddo	190,000
1716	Algiers	18,000
1726	Palermo	6,000
1731	Pekin	95,000
1746	Lima	18,000
1754	Cairo	40,000
1755	Lisbon	35,000
1773	Guatemala	33,000
1797	Quito	41,000
1822	Aleppo	22,000
1861	Mendoza, South America	12,000
1868	Arica	6,000
1880	Manilla	3,000
1883	Ischia	2,000

The following table shows the elevation of various places over sea-level, in feet :—

Bangalore	3,015	Mexico	7,480
Berne	1,775	Milan	420
Bogota	8,680	Moscow	985
Darjeeling	7,460	Munich	1,740
Erzeroum	5,255	Quito	9,545
Friburg	2,050	Rome	150
Geneva	1,250	St. Gall	1,820
Gondar	7,260	St. Helena	1,775
Gratz	1,295	St. Remy	5,265
Guatemala	4,705	Salzburg	1,350
Innspruck	1,895	Seringapatam	2,390
Jerusalem	2,515	Vevay	1,245
Kandy	1,695	Zurich	1,240
Madrid	2,090		

PLATE IV

EDUCATION.

Percentage of Adults able to write.

Percentage of population attending school ; average attendance.
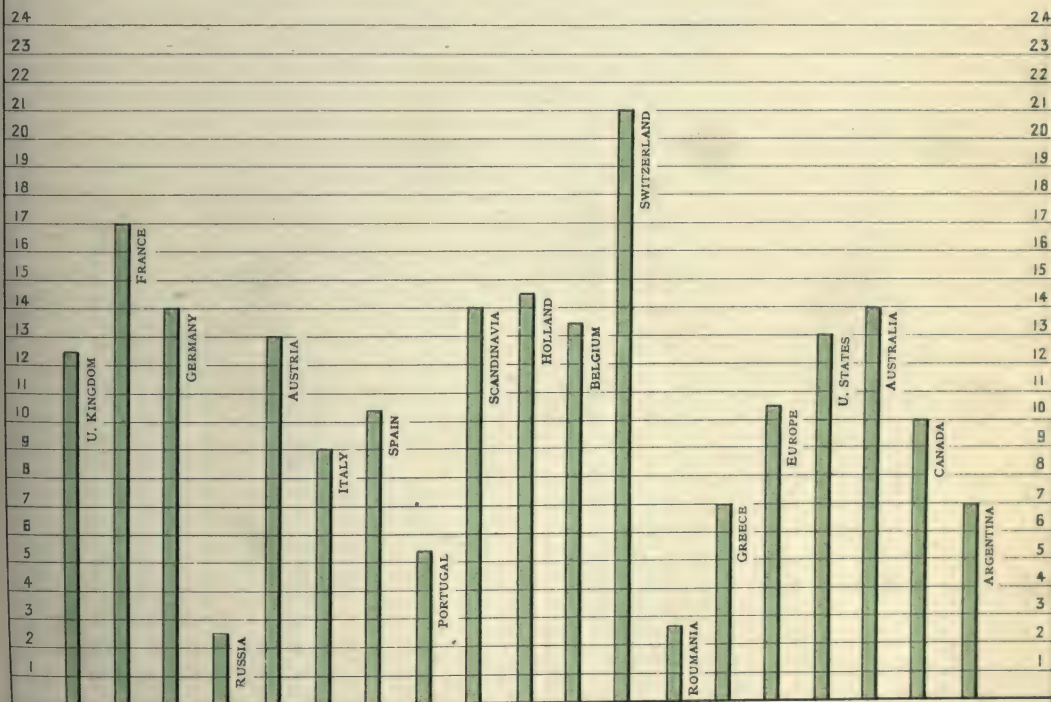
EDUCATION

The following is a general view of the educational condition of the various countries according to latest information :—

Country	Year	Schools	Teachers	Pupils	Expenditure, £	School Children per 1000 Pop.
United Kingdom . .	1888	30,522	85,000	4,605,000	9,690,000	123
France	1887	85,545	136,800	6,308,000	6,000,000	170
Germany	1881	57,000	120,000	7,100,000	4,000,000	140
Russia	1889	43,100	...	2,510,000	3,800,000	25
Austria	1889	35,718	99,200	4,903,000	2,400,000	130
Italy	1887	70,507	86,400	3,071,000	1,100,000	90
Spain	1885	31,880	36,000	1,843,000	1,200,000	106
Portugal	1886	5,663	...	257,000	200,000	54
Switzerland . . .	1886	6,794	12,720	630,000	400,000	210
Belgium	1887	8,257	10,800	808,000	1,100,000	135
Holland	1888	5,448	19,870	758,000	1,300,000	145
Scandinavia . . .	1886	19,936	...	1,263,000	1,200,000	140
Roumania . . .	1883	2,807	...	134,000	...	27
Servia	1888	702	1,650	60,000	200,000	30
Greece	1884	2,700	3,374	143,000	240,000	72
Europe	·	406,579	...	34,393,000	32,830,000	105
United States . .	1888	171,200	272,700	7,850,000	25,500	130
Canada	1887	15,607	18,942	487,000	1,100,000	100
Australia . . .	1888	9,104	13,200	510,000	1,900,000	140
India	1888	133,352	...	3,474,000	2,100,000	17
South Africa . . .	1888	1,530	...	56,000	250,000	40
Ceylon	1888	3,650	...	131,000	...	50
Algeria	1888	1,214	...	110,000	...	30
Argentina . . .	1888	3,227	7,300	255,000	500,000	70
Chile	1888	1,450	...	86,000	...	34
Uruguay	1888	780	1,530	54,000	120,000	90
Venezuela . . .	1888	2,042	...	105,000	30,000	45
Brazil	1889	7,500	...	300,000	...	30
Egypt	1887	6,640	7,240	170,000	...	25
Japan	1888	27,550	62,520	2,835,000	...	70
Total . . .	...	791,425	...	50,816,000	...	...

The following table shows approximately the spread of education in the last fifty years :—

	Average Attendance at School			Percentage of Adults able to Write	
	1840	1888	Increase per Cent.	1840	1889
U. Kingdom	2,100,000	4,600,000	118	59	90
France . .	2,900,000	6,300,000	117	47	85
Germany .	3,700,000	7,100,000	92	82	96
Russia . .	460,000	2,510,000	444	2	15
Austria . .	2,310,000	4,900,000	113	21	55
Italy . . .	550,000	3,070,000	458	16	47
Spain . . .	450,000	1,840,000	309	14	28
Portugal . .	50,000	260,000	420	...	...
Holland . .	300,000	760,000	153	70	86
Belgium . .	320,000	810,000	153	45	80
Scandinavia	550,000	1,260,000	130	80	97
Switzerland .	400,000	630,000	60	80	95
Greece, &c. .	90,000	350,000	290	...	...
Europe . .	14,180,000	34,390,000	145	...	...
U. States .	1,260,000	7,850,000	520	80	92
India . . .	150,000	3,470,000	2,210	...	...
Colonies, &c.	650,000	5,100,000	680	...	...
Total .	16,240,000	50,810,000	217	...	...

The march of education in Europe has been remarkable, for whereas population has only increased 33 per cent. since 1840, the average number of children attending school has risen 145 per cent.

The percentage of conscripts who could read was as follows :—

	1868	1880	1884
Germany . . .	96	98	99
Holland . . .	82	88	90
France . . .	76	86	88
Belgium . . .	74	81	85
Austria . . .	34	61	69
Italy . . .	32	52	53
Hungary . . .	22	49	55
Sweden . . .	...	...	100
Denmark . . .	...	...	100
Switzerland . .	...	...	98
Russia . . .	...	...	21
Servia . . .	...	...	21

The following table shows the proportions of men and women able to sign the marriage register, also of conscripts able to read, at various dates :—

Year	Able to Sign Register						Able to Read in 100 Conscripts	
	In 100 Men			In 100 Women				
	England	France	Italy	England	France	Italy	France	Italy
1841	67	...	...	51	...	...	...	...
1851	69	...	...	55	...	...	...	...
1861	75	71	...	65	55	...	70	...
1871	81	75	43	73	63	23	80	43
1883	88	86	55	84	78	33	87	52

As respects superior education, the universities of the world stand thus :—

	Universities	Professors	Students
United Kingdom . .	11	344	13,400
France	1	180	10,300
Germany	21	1,920	26,680
Russia	8	701	10,400
Austria	10	1,430	18,600
Italy	21	600	9,000
Spain	10	380	16,200
Portugal	1	40	1,300
Belgium	4	120	5,900
Holland	4	150	2,300
Denmark	1	60	1,400
Sweden	2	173	2,710
Norway	1	46	1,700
Switzerland	4	90	2,000
Greece	2	40	1,800
Europe	101	6,274	123,690
United States . . .	360	4,240	60,100
Morocco	1	40	700
Total . . .	462	10,554	184,490

There are also universities in Canada, Australia, and India, of which statistics are wanting.

The number of university students compared with population is much greater in Spain and Belgium than in other European countries.

Intermediate education embraces a great number of colleges, academies, lyceums, &c., of which details will be found in the various countries.

UNITED KINGDOM

In 1830 the Board of Education was established, with power to spend £30,000 on schools. The returns for Great Britain (excluding Ireland) have been as follows :—

Year	Sum Voted, £	Number of Schools Inspected	Accommodation for Pupils	Average Attendance
1850 . . .	180,000	2,613	...	225,400
1860 . . .	724,000	7,272	1,400,000	884,000
1870 . . .	912,000	10,949	2,215,000	1,454,000
1880 . . .	2,854,000	20,670	4,843,000	3,155,000
1888 . . .	4,168,000	22,326	6,043,000	4,111,000

The number of schools of all kinds, and the average attendance of school-children in the three kingdoms, showed thus :—

	Schools		Scholars	
	1846	1888	1846	1888
England . . .	22,200	19,221	1,500,000	3,615,000
Scotland . . .	5,042	3,105	220,000	496,000
Ireland	9,657	8,196	330,000	494,000
Total . .	36,899	30,522	2,050,000	4,605,000

The proportion of adults able to write is shown by those signing the marriage register, viz. :—

	Per Cent.		
	Men	Women	General
England . . .	92	90	91
Scotland . . .	96	92	94
Ireland	78	76	77
United Kingdom .	91	89	90

If we compare the returns of the whole United Kingdom for 1888 with those of 1878 we find as follows :—

	1878	1888	Ratio of Increase
			Per Cent.
Number of schools	26,734	30,522	14
Accommodation .	5,543,000	7,105,000	29
Average attendance . . . }	3,219,000	4,605,000	44

The returns for the three kingdoms in 1888 were as follows :—

	Expenditure, £	Number of Schools	Accommodation	Average Attendance
England .	7,440,000	19,221	5,356,000	3,615,000
Scotland .	1,160,000	3,105	687,000	496,000
Ireland . .	1,090,000	8,196	1,062,000	494,000
U. Kingdom	9,690,000	30,522	7,105,000	4,605,000

The income of the schools in 1888 was made up thus :—

	England	Scotland	Ireland	United Kingdom
	£	£	£	£
State subsidy	3,600,000	570,000	900,000	5,070,000
Rates, &c. .	3,840,000	590,000	190,000	4,620,000
Total	7,440,000	1,160,000	1,090,000	9,690,000

From 1870 to 1888 the new schools built in England and Wales were :—

Schools	Number	Accommodation for Pupils
Board	4,562	1,809,000
Voluntary . . .	6,738	1,668,000
Total . .	11,300	3,477,000

In 1888 the schools of England and Wales had 68,683 certified teachers and 29,901 pupil teachers ; the average expenditure yearly was :—

	£	s.	d.	
Board schools . . .	2	4	8	per child
Voluntary schools . .	1	16	4	,, ,,

Local taxation supplied 18s. per child, fees 10s., and the subsidy from the State the rest. In London the expenditure was much higher, namely, 61s. in Board Schools, and 44s. in voluntary per child in average attendance. The working of both kinds of schools in England and Wales in 1881 is shown thus :—

	Schools		Average Attendance	
	1881	1888	1881	1888
Voluntary .	14,370	14,659	2,008,000	...
Board . .	3,692	4,562	856,000	...
Total .	18,062	19,221	2,864,000	3,615,000

In 1880 the religion of the school-children of the United Kingdom was as follows :—

	School Children	Percentage
Church of England . .	1,539,700	42.8
Presbyterian . . .	527,400	14.6
Roman Catholic . .	526,600	14.6
Various . . .	1,030,300	28.0
Total . .	3,624,000	100.0

The average attendance of children compared with population thus :—

	Numbers		Per 1000 Inhabitants	
	1881	1888	1881	1888
England . . .	2,864,000	3,615,000	110	127
Scotland . . .	410,000	496,000	108	123
Ireland . . .	454,000	494,000	88	104
United Kingdom .	3,728,000	4,605,000	106	123

The increase of schools has been accompanied by a decrease of crime. The returns for England, Wales, and Scotland show :—

Period	Children Attending School	Annual Convictions	School-Children per 1000 Population	Criminals per 100,000 Population
1841–50	220,000	24,300	11	122
1851–60	560,000	21,200	26	96
1861–70	1,170,000	17,010	47	68
1871–80	2,300,000	13,900	82	50
1887	4,019,000	12,150	125	38

In 1838 Judge Coleridge pointed attention in this direction, and soon afterwards the Committee Report of the House of Commons contained the following testimony :—"We find that the neglect of education causes much crime that might be avoided."

The growth of crime has been materially checked in late years by industrial schools and reformatories, which were begun in 1857, the first for vagrant or destitute children, the second for youthful criminals, the Police Report showing that in 1856 there were 100,000 children and youths under 17 living as vagabonds or thieves in England only. The returns published in 1888 for these institutions show :—

	Reformatories	Industrial Schools	Total
England . . .	4,225	14,585	18,810
Ireland . . .	923	7,991	8,914
Total . .	5,148	22,576	27,724
Expenditure, £ . .	96,000	433,000	529,000

The average expenditure is £19 per head in the above institutions. The entries in England in 1887 were as follows :—

	Reformatories	Industrial Schools	Total
Boys	1,048	4,952	6,000
Girls . . .	184	1,113	1,297
Total . .	1,232	6,065	7,297

The summary of eleven years' working of reformatories, down to 1880, showed as follows :—

Admitted	36,232
Put to trades	23,550
Died or removed	5,547
Remaining under instruction . .	7,135

The good effect of reformatories, since their introduction in 1869, is shown thus :—

	1869	1881
Juvenile offenders . . .	10,314	5,579
Per million inhabitants . .	458	215

This gives a decline of 53 per cent. in juvenile crime.

The Universities of the United Kingdom in 1876 showed as follows :—

	Students	Annual Expenditure	Per Student
		£	£
Oxford . .	1,860	414,000	220
Cambridge . .	1,920	340,000	177
Dublin . .	810	62,000	78
Edinburgh . .	2,320	200,000	87
Glasgow . .	1,340	90,000	68
Aberdeen . .	650	30,000	45
St. Andrew's .	300	17,000	56

Besides the above, there are the Universities of London, Durham, Manchester, and the new Royal University of Ireland.

The salaries of the first three are as follows :—

	Fellows and Professors	Salaries, £	Average, £
Oxford	424	159,000	373
Cambridge . .	483	132,000	274
Trinity, Dublin .	59	31,000	530

The incomes were derived thus :—

	Endowments, £	Fees, &c., £	Total, £
Oxford	280,000	134,000	414,000
Cambridge . .	235,000	115,000	340,000
Dublin	49,000	13,000	62,000

The register of Cambridge shows that the number of B.A. graduates admitted yearly averaged thus :—

16th century	70
17th ,, ...	235
19th ,, ...	326

The ratios of winners at Indian competition examinations in 1880 were :—

	Per Cent.
Oxford students . . .	28
Cambridge students . .	24
Dublin students . . .	17
Scotch Universities . . .	14
London, Cork, &c. . .	17
	100

IRELAND

In his *Progress of the Nation* (1843) Mr. Porter says: —"The Commissioners for National Education in Ireland have met with a most determined hostility on the part of the Protestant clergy." In order to prevent Catholics from receiving instruction, it was felony for a Catholic (in the last century) to keep a school; and so late as 1801 the Protestant Bishop of Cork prosecuted a man for this offence, but the Lord Chancellor quashed the suit as contrary to the spirit of the age.

The first system of public schools was started in 1817 by the Kildare Street Society, but one of the statutes was to read a chapter daily from King James's version of the Bible. The National Schools were begun by Parliament in 1830. The register shows the children on the rolls, and, as the average attendance in Ireland has always

been under 46 per cent. of the number on the rolls, we can estimate the latter for those early years :—

Year	Schools	Scholars Enrolled	Average Attendance	Average Attendance per 1000 Inhabitants
1820	241	16,800	7,600	1
1825	1,395	102,400	46,000	6
1835	1,106	145,500	65,000	8
1840	1,978	232,600	104,000	13
1861	...	803,400	262,800	45
1871	...	1,021,700	363,800	67
1881	7,590	1,066,000	453,600	88
1888	8,196	1,060,900	493,900	104

The annual expenditure is £1,090,000, of which £900,000 is a State subsidy, the rest made up of rates, fees, &c.

As in England, the increase of schools in Ireland has brought a decrease of crime, viz. :—

	Children Attending School	Annual Convictions	School Children per 1000 Pop.	Criminals per 100,000 Pop.
1851–60	220,000	7,705	35	124
1861–70	310,000	2,918	56	53
1871–80	405,000	2,492	77	47
1887	513,000	1,412	106	29

FRANCE

The best measure of educational progress is the ratio of male and female adults able to sign the marriage register, and of conscripts able to write when enrolled for service, viz. :—

Year	Conscripts Able to Write		Adults of Both Sexes
1830	45 per cent.	...	42
1855	66 ,,	...	60
1865	76 ,,	...	66
1876	84 ,,	...	75
1881	86 ,,	...	82

Official returns of the Educational Department show as follows :—

Year	Schools	Average Attendance	Average Attendance per 1000 Inhabitants
1840 . . .	55,930	2,882,000	85
1864 . . .	64,978	3,414,000	90
1887 . . .	85,545	6,308,000	170

Public expenditure on education of all kinds and that on primary schools only are shown as follows :—

Education		Primary Schools	
Year	Amount, £	Year	Amount, £
1840 . . .	400,000	1830	12,000
1863 . . .	1,300,000	1855	240,000
1872 . . .	2,250,000	1870	350,000
1881 . . .	3,600,000	1888	5,800,000

In 1886 the primary schools showed as follows :—

	Lay	Clerical	Total
Schools	60,865	18,890	79,955
Teachers . . .	88,668	46,548	135,216
Pupils	3,780,000	1,737,000	5,517,000

	Male	Female	Total
Teachers . . .	62,796	72,420	135,216
Pupils	2,786,000	2,731,000	5,517,000

Of the total number of pupils, 58 per cent. were free, and 42 per cent. paid for their education.

In the boys' schools there is one teacher for 45 children ; in the girls' schools one for 38. Clerical schools average 93 pupils, lay 63.

In December 1887 the primary and secondary schools stood thus :—

	Number	Pupils			Primary Schools	
					Number	Teachers
Primary	85,087	6,208,000	Lay		67,133	90,300
Lycées, &c.	346	89,400	Clerical		17,954	46,500
Girls' colleges	112	10,400				
Total . . .	85,545	6,307,800	Total . .		85,087	136,800

The above is exclusive of schools for adults, which were attended by 156,000 men and 28,000 women.

Although France has but one University, that of Paris, it has 16 University Colleges. The numbers who graduated in 1885 were :—

	Examined	Graduated		Examined	Graduated
Paris . . .	3,540	1,500	Montpellier .	644	266
Toulouse . .	1,218	443	Aix	519	207
Rennes . .	1,116	571	Clermont . .	540	173
Lyons . . .	983	423	Dijon . . .	430	155
Douai . . .	848	305	Nancy . . .	343	150
Poitiers . .	823	314	Grenoble . .	341	121
Bordeaux . .	782	278	Besançon . .	192	93
Caen . . .	675	293	Algiers . .	118	48

Making a total of 13,112 candidates, of whom 5330 graduated. There are altogether 10,300 students, who are thus distributed :—

Law . . . 2,500 | Literature . . 3,500
Medicine . . . 2,800 | Science . . . 1,500

In the rank and file of the French army 15 per 1000 are university graduates.

ALGERIA

The system of education in 1888 was as follows :—

	No.	Pupils
Colleges . . .	9	3,100
Primary schools . .	921	70,500
Arab schools . .	76	9,000
Infant schools . .	208	27,000
Total .	1,214	109,600

Only 14 per cent. of children of school-age attend school; there are 535,000 Moslem children not at school.

GERMANY

In 1876 it was officially stated that the Empire counted 60,000 primary schools, the annual outlay by the State in maintaining them amounting to £3,400,000 sterling. In 1871 the report showed as follows :—

	Schools	Teachers	Pupils	Pupils to Population, per Cent.
Prussia . . .	34,988	57,936	4,008,000	16
Bavaria . . .	7,184	11,921	841,000	17
Saxony . . .	2,134	7,219	451,000	16
Baden . . .	1,957	3,603	245,000	16
Other States .	6,540	11,320	784,000	15½
Total .	52,803	91,999	6,329,000	16

In 1881 there were 57,000 schools, with 120,000 teachers and 7,100,000 pupils.

Superior education shows the following statistics :—

	Gymnasia	Grammar-Schools	Total
Prussia	231	223	454
Other States . . .	105	172	277
Total .	336	395	731

The gymnasia are maintained at a cost of £220,000 a year, of which one-half is defrayed by municipal rates. They have 6670 teachers and are as follows :—

	Gymnasia	Pupils
Protestants	173	192,500
Catholics	53	35,500
Mixed	110	28,000
Total . .	336	256,000

Official statistics for Prussia in 1843 compare with those in 1871 as follows :—

	1843	1871	Ratio of Increase
Schools	23,100	34,988	52 per cent.
Teachers	27,600	57,936	110 ,,
Pupils	2,271,000	4,008,000	75 ,,

Germany has 21 Universities, with 1920 professors and 26,700 students. The following table shows the percentage of students according to religious belief, as compared with the percentage of population according to creed :—

	General Population	University Students
Protestants . . .	64	70
Roman Catholics . . .	34	20
Jews	12	10
Total . .	100	100

The Universities stand in this order :—

	Students		Students
Berlin . . .	5,700	Bonn . . .	1,200
Leipzig . .	3,100	Göttingen .	1,100
Munich . .	2,300	Wurzburg .	1,100
Breslau . .	1,600	Heidelberg .	1,020
Halle . .	1,600	Königsberg .	910
Tübingen .	1,400	Ten others .	7,100

Of the total number of students 89 per cent. are Germans and 11 per cent. of other nations, Americans being 1 per cent. The oldest University is that of Heidelberg, which dates from 1386.

RUSSIA

The *Rousski Kalendar* and other semi-official documents give the following statistics :—

Year	Schools	Pupils	Pupils per 1000 Population
1804	627	109,000	3
1824	2,118	263,000	6
1838	3,956	461,000	9
1875	32,100	1,213,000	15
1889	43,100	2,270,000	25

The returns for 1875 and 1888 compare as follows :—

	School-Children		Increase per Cent.
	1875	1888	
Boys	985,000	1,726,000	73
Girls	228,000	544,000	138
Total . .	1,213,000	2,270,000	89

The ratios of children at school were approximately :—

	1875			1888		
	Boys	Girls	Total	Boys	Girls	Total
At school . .	11.5	2.6	6.9	16.7	5.4	11.0
Not at school .	88.5	97.4	93.1	83.3	94.6	89.0
Total .	100.0	100.0	100.0	100.0	100.0	100.0

In 1802 the Czar Alexander I. founded the Universities of St. Petersburg and Moscow. It was not, however, until after the emancipation of the serfs, in 1861, that great efforts were made to educate the masses, 20,000 new schools being opened in the ensuing ten years. Besides the above primary schools there are gymnasia and middle-schools, as follows :—

	No.	Pupils
For boys . . .	622	168,000
For girls . . .	324	62,300
Total .	946	230,300

These schools had 7100 teachers, and half their cost is defrayed by the State. The Russian Government expended £3,800,000 on schools in 1889.

There were eight Universities in 1884, viz. :—

	Professors	Students	State Subsidy, £
Moscow . . .	103	2,430	53,000
St. Petersburg . .	99	2,050	43,000
Kiev . . .	105	1,470	46,000
Dorpat . . .	65	1,430	26,000
Warsaw . . .	79	1,000	29,000
Kharkov . . .	89	820	37,000
Kazan . . .	109	780	38,000
Odessa . . .	52	380	25,000
Total . .	701	10,360	297,000

In 1888 the number of University students reached 12,900.

The annual subsidy for primary schools is £900,000, equal to 8s. per pupil.

AUSTRIA-HUNGARY

Official returns for the whole Empire were as follows :—

Year	Schools	School-Children	Per 1000 Population
1837 . . .	16,754	2,313,000	83
1870 . . .	31,100	3,189,000	90
1878 . . .	31,740	3,663,000	99
1889 . . .	35,720	4,903,000	130

The amount spent yearly by Government on the above primary schools is £1,500,000, equal to 8s. per pupil. The returns for 1878 were as follows :—

	Austria	Hungary	Total
Number of schools .	15,166	16,574	31,740
Teachers . . .	31,200	22,300	53,500
Pupils, boys . .	1,093,000	833,000	1,926,000
Pupils, girls . .	1,042,000	695,000	1,737,000
Total pupils . .	2,135,000	1,528,000	3,663,000

The whole educational system of Austria proper in 1889 is shown thus :—

	Number	Professors	Scholars
Universities . . .	7	1,092	13,680
High schools . .	61	691	4,720
Middle schools . .	318	5,850	79,450
Technical schools .	1,570	7,890	111,200
Free schools .	16,945	57,236	2,748,300
Total . . .	18,902	72,759	2,957,350

The statistics of seven Austrian Universities show as follows :—

	Professors	Students Theology	Law	Medicine	Philosophy	Total	State Grant, £
Vienna .	361	217	1,998	2,598	643	5,456	83,000
Grätz . .	139	102	549	490	167	1,308	23,000
Innspruck	86	251	261	202	104	818	21,000
Prague .	285	269	1,580	1,404	421	3,674	63,000
Lemberg .	69	361	598	...	125	1,084	15,000
Cracow .	110	89	484	392	129	1,094	29,000
Czernowitz	42	59	138	...	52	249	8,000
Total .	1,092	1,348	5,608	5,086	1,641	13,683	242,000

The religion of the students showed these ratios :—

	Percentage of Religion of Students							
	Vienna	Grätz	Innspruck	Prague	Lemberg	Cracow	Czernowitz	Total
Catholic . .	54.9	86.5	99.1	86.2	87.0	83.8	29.3	72.7
Protestant .	7.0	5.4	0.5	1.9	0.3	4.3	4.4	4.8
Jew . . .	33.2	3.8	0.3	11.6	12.7	11.9	21.7	19.6
Greek . .	3.9	4.3	0.1	0.3	...	...	44.6	2.9
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

In 1886 the ratios of children of school-age at school * were :—

	Austria	Hungary
Attending school . .	85.0	80.4
Not at school . . .	15.0	19.6
Total . . .	100.0	100.0

Hungary has three Universities, viz. :—

	Professors	Students
Buda-Pesth . . .	211	3,660
Klausenburg . . .	81	525
Agram . . .	48	415
Total . . .	340	4,600

The whole system of education in Hungary in 1886 stood thus :—

.	Number	Teachers	Pupils	Males	Females
Universities . .	3	340	4,600	4,600	...
Middle schools .	405	3,140	73,700	69,200	4,500
Primary . . .	16,410	23,980	1,868,000	993,000	875,000
Total . . .	16,818	27,460	1,946,300	1,066,800	879,500

The sum paid yearly in salaries to teachers of primary schools is £880,000 sterling, or £36 each.

The following table shows the advance of education in Hungary in eight years :—

Year	Primary Schools		All Schools	
	Teachers	Pupils	Teachers	Pupils
1880 . . .	21,700	1,620,000	24,900	1,670,000
1884 . . .	23,100	1,790,000	27,100	1,850,200
1888 . . .	24,400	1,950,000	28,900	2,015,000

The languages taught in the primary schools are :—

Austria	Schools	Hungary	Schools
German .	7,001	Magyar .	7,938
Czech .	4,246	Various .	8,472
Various .	5,698		
Total .	16,945	Total .	16,410

The advance of public instruction among the masses between the years 1868 and 1880 is shown by the ratio of conscripts able to read, viz. :—

	1868	1880
Austrian . . .	34 per cent.	61 per cent.
Hungarian . . .	22 ,,	49 ,,

In 1874 the ratios of conscripts able to read and write were :—

	Per Cent.		Per Cent.
Galitzia . . .	15.5	Moravia . . .	71.4
Croatia . . .	42.3	Styria . . .	73.7
Tyrol . . .	53.4	Bohemia . . .	84.7
Hungary . . .	60.0	Austria . . .	90.0

In 1880 the ratio of adults able to sign the marriage register was as follows :—

	Per Cent.		
	Males	Females	Both Sexes
Austria	61	53	57
Hungary . . .	49	30	39

* This shows the ratio of children on the school-rolls ; the average attendance was only 65 per cent. of children of school-age.

The ratios of children of school-age attending school were :—

	Per Cent.			Per Cent.
Galitzia . . .	27	Styria . . .		80
Illyria . . .	47	Moravia . . .		90
Hungary . . .	76	Austria . . .		90

The general average for the whole Empire was 70 per cent.

ITALY

Official returns show that the number of children at primary schools has doubled since 1862, viz. :—

Year	Boys	Girls	Total	Per 1000 Population
1862	627,000	483,000	1,110,000	50
1870	890,000	683,000	1,573,000	61
1877	...	...	2,082,000	75
1887	1,194,000	1,059,000	2,253,000	75

The returns for 1887 compare with 1877 thus :—

	1877		1887	
	Schools	Pupils	Schools	Pupils
Primary . .	44,050	2,082,000	53,630	2,253,000
Superior . .	13,910	555,000	16,877	818,000
Total	57,960	2,637,000	70,507	3,071,000

The returns for 1887 showed as follows :—

Primary Schools		All Schools, Teachers	
Boys . . .	1,194,000	Primary . . .	55,300
Girls . . .	1,059,000	Superior . . .	31,100
Total .	2,253,000	Total . .	86,400

The progress of instruction is shown in the following table :—

Year	Conscripts Able to Read	Percentage Signing Marriage Register	
	Per Cent.	Men	Women
1866	36.0	40.0	21.0
1871	43.3	42.3	23.3
1881	52.3	51.8	30.1
1887	55.0	57.2	37.2

The percentage of persons in Italy, at various ages, who could read was as follows :—

Age, Years	Towns Only				All Italy			
	Males		Females		Males		Females	
	1871	1881	1871	1881	1871	1881	1871	1881
6–18	52	59	45	56	34	43	27	38
18–25	60	68	51	59	43	53	30	37
25–40	59	66	48	53	40	46	23	27
40–60	55	58	43	43	37	40	17	19

In 1871 the percentage of persons over seven years who could read, in the various provinces, stood thus :—

	Males	Females	Total Population
Sicily . . .	35	24	30
Naples . . .	34	22	28
Tuscany . . .	49	38	44
Romagna . . .	49	39	44
Venetia . . .	55	37	46
Lombardy . . .	67	59	63
Piedmont . . .	73	59	66

The ratio was 35 at Messina, 76 at Florence and Genoa, and 83 per cent. at Turin.

There are twenty-one Universities, with 600 professors and 9000 students ; the principal Universities are :—

	Students			Students
Naples . . .	1,450	Padua . . .		970
Turin . . .	1,230	Rome . . .		560

The annual Government expenditure for education is £1,100,000 sterling.

SPAIN

The number of schools and scholars was as follows :—

Year	Public	Private	Total	Pupils	Per 1000 Population
1850	13,334	4,100	17,434	664,000	51
1870	22,711	5,406	28,117	1,426,000	94
1885	24,529	7,350	31,879	1,843,000	106

The sexes of pupils are said to be sixty males to forty females.

The percentage of persons able to read and write was as follows :—

	1860			1877		
	Men	Women	Total	Men	Women	Total
Read and write . }	31	9	20	34	15	25
Read only .	4	5	5	3	4	3
Ignorant .	65	86	75	63	81	72
Total .	100	100	100	100	100	100

The progress made in middle-class or superior schools has been :—

Year	Pupils
1858	15,000
1868	25,300
1878	33,500

The total expenditure for schools in 1879 was one million sterling,[*] besides £100,000 for Universities. There are 10 universities, with 380 professors and 16,200 students ; the number in 1865 was only 9700. The oldest University is Salamanca, founded in 1240 ; it has 40 professors and 1300 students. In Spain 35 per cent. of adults can sign the marriage register, against 18 per cent. in 1848. The Census of 1860 showed as follows :—

	Able to Read	Ratio to Population over 7 Years Old
Males	2,731,000	40 per cent.
Females	1,105,000	16 ,,
Total . .	3,836,000	28 ,,

PORTUGAL

The educational system is as follows :—

	Number	Pupils
University	1	1,300
Colleges	70	14,200
Private schools	1,935	65,100
Public schools	3,657	176,000
Total . .	5,663	256,600

* Of this sum the Government provides only £80,000, the rest being supplied by municipal rates. Teachers earn about £20 a year.

The increase of primary instruction is remarkable :—

Year	Schools	Scholars	Per 1000 Population
1854.	1,350	55,000	14
1870.	3,000	130,000	32
1878.	4,520	198,000	46
1886.	5,384	237,000	54

The annual outlay for education is £220,000 sterling.

HOLLAND

The scheme of instruction in 1888 was :—

	Number	Teachers	Pupils
Universities	4	180	2,600
Colleges	212	2,120	18,700
Private schools . . .	1,204	4,767	177,100
Public schools . . .	2,940	12,823	449,400
Infant schools . . .	1,088	...	110,000
Total . .	5,448	19,890	757,800

The returns of primary schools showed thus :—

Year	Schools	Scholars	Per 1000 Population
1835.	2,830	304,000	102
1870.	3,614	456,000	120
1877.	3,821	523,000	132
1888.	4,144	627,000	145

In 1887 the expenditure was :—

Primary schools .	£1,060,000	State grant . . .	£580,000
Colleges . . .	240,000	Communal grant .	720,000
Total . .	1,300,000	Total . .	1,300,000

The ratio of conscripts able to read and write was as follows :—

Year	Able to Read	To Read and Write
1850	77.2	74.9
1860	80.2	78.0
1876	88.0	87.0

The sexes of children attending school were boys 54, girls 46.

BELGIUM

The whole educational system may be summed up as follows :—

	Number	Pupils
Universities	4	5,900
Colleges	171	33,100
Adult schools . . .	1,644	65,300
Primary schools . .	5,491	604,100
Infant schools . . .	947	99,300
Total . . .	8,257	807,700

The public primary schools of Belgium were as follows :—

Year	Number of Schools	Pupils			Free	Paying
		Male	Female	Total		
1845	3,431	182,900	143,700	326,600	174,400	152,200
1857	3,787	219,100	180,500	399,600	250,200	149,400
1869	4,260	267,400	226,000	493,400	339,200	154,200
1878	4,839	318,500	279,700	598,200	452,300	145,900
1887	5,491	331,400	272,600	604,000	516,700	87,400

The income and expenditure of the above schools were as follows :—

	1843	1860	1870	1880	1886
	£	£	£	£	£
Fees	28,000	34,000	46,000	44,000	72,000
Local grants	34,000	74,000	132,000	266,000	375,000
State grants	8,000	54,000	140,000	376,000	290,000
Sundries	34,000	108,000	289,000	714,000	343,000
Expenditure	104,000	270,000	607,000	1,400,000	1,080,000

There are four Universities, the returns of which show the number of students thus :—

	1840	1870	1888		1840	1870	1888
Ghent	396	459	838	Philosophy . . .	344	257	657
Liege	331	653	1,470	Science	293	350	1,351
Brussels . . .	279	496	1,795	Law	359	605	1,392
Louvain . . .	490	907	1,757	Medicine . . .	272	562	1,484
				Engineering, &c. .	228	741	976
Total .	1,496	2,515	5,860	Total . .	1,496	2,515	5,860

The number of persons able to read and write was as follows :—

	1866	1888
Males . . .	1,209,000	1,661,000
Females . . .	1,070,000	1,527,000
Total . .	2,279,000	3,188,000

The ratio of conscripts able to read and write was as follows :—

	1843	1860	1870	1889
Illiterate . . .	43.6	31.8	24.0	13.1
Read only . .	7.2	7.6	5.2	2.9
Read and write .	49.2	60.6	70.8	84.0
	100.0	100.0	100.0	100.0

SWEDEN

Latest returns are to this effect :—

	Number	Pupils
Universities . . .	2	2,700
Colleges	146	16,700
Primary schools . .	10,338	708,000
Total . .	10,486	727,400

In 1859 the primary schools had 2950 teachers, and the ratio of children of school-age attending school was 71 per cent. In 1888 there were 12,880 teachers, and the ratio of children at school was 98 per cent. Only three recruits in 1000 cannot read and write. The outlay for schools is £600,000 a year, one-fourth from the Treasury, the rest municipal. The University of Upsal has 1800 students, that of Lund 900.

NORWAY

The scheme of instruction in 1886 was as follows :—

	Number	Pupils
University	1	1,700
Academies . . .	128	12,500
Primary schools . .	6,340	288,700
Total . .	6,469	302,900

The annual outlay is £260,000, mostly raised by municipal rates. The State gives £25,000 a year to the University of Christiania.

DENMARK

The returns for 1888 show as follows :—

	Number	Pupils
University . . .	1	1,300
Colleges . . .	40	...
Primary schools . .	2,940	232,000
Total . .	2,981	233,300

The University of Copenhagen, founded in 1479, has sixty professors.

SWITZERLAND

The number of Swiss students (exclusive of 630 foreigners) was as follows at the four Universities :—

Geneva . . . 217	Medicine . . . 558
Berne . . . 430	Law . . . 219
Zurich . . . 335	Divinity . . . 200
Basel . . . 293	Science . . . 298
Total . 1,275	Total . 1,275

In 1886 the returns showed as follows :—

	Number	Teachers	Pupils
Universities . . .	4	351	1,900
Academies . . .	882	...	41,000
Girls' academies . .	1,600	3,543	136,500
Primary schools . .	4,308	8,826	461,600
Other schools . .	...	...	260,500
Total .	...	...	901,500

In 1830 only 78 per cent. were able to sign the marriage register ; in 1871 the ratio was 88 per cent. The above school total includes 245,000 adults attending night-schools.

ROUMANIA

In 1883 the official returns were :—

	Number	Pupils
Universities . .	2	700
Academies . . .	62	8,800
Primary schools . .	2,743	124,100
Total .	2,807	133,600

The Universities of Bucharest and Jassy had ninety-seven professors.

SERVIA

The educational system in 1888 was as follows :—

	Number	Teachers	Pupils
University . . .	1	31	300
Academies . . .	33	423	7,200
Primary schools . .	668	1,194	52,400
Total .	702	1,648	59,900

The annual expenditure by the State is £100,000, besides municipal subsidies. In 1884 only 10 per cent. of the population could read and write, that is, about 15 per cent., excluding infants.

GREECE

The educational system in 1884 showed thus :—

	Number	Teachers	Pupils
University . . .	1	98	2,400
Academies . . .	418	776	22,300
Primary schools . .	2,281	2,500	118,000
Total .	2,700	3,374	142,700

The annual expenditure is £240,000 sterling.

UNITED STATES

The first educational census was taken in 1840, and the official returns since then show thus :—

Year	Schools	Revenue, £ Sterling	Teachers	Scholars	Scholars per 1000 Pop.
1840	50,700	...	...	2,025,000	119
1850	87,300	3,400,000	...	3,642,000	160
1860	113,000	7,100,006	148,700	5,693,000	180
1870	141,600	19,400,000	221,040	6,596,000	171
1880	171,200	29,100,000	272,700	9,705,000	194
1888	...	...	347,300	11,959,000	196

The number of scholars is that on the rolls, but the average attendance is about 63 per cent. of same.

Year	On the Rolls	Average Attendance	Ratio
1880 . . .	9.705,000	6,049,000	62 per cent.
1885 . . .	11,170,000	7,020,000	63 ,,
1888 . . .	11,950,000	7,852,000	65 ,,

As the population in 1888 was 60 millions, the average attendance was equal to 131 per thousand of population, against 123 in the United Kingdom. Considering the vast extent and scattered population of the United States, this result is admirable.

School revenue seems largely to exceed expenditure, the latter in 1888 being stated at £25,510,000, whereas the school revenue of 1880 was said to reach £29,100,000 sterling.

The school-children in the various States were as follows :—

	1840	1860	1885	Average Attendance, 1885	Average Attendance per 1000 Population, 1880
Alabama	21,000	98,000	234,000	145,000	116
Arkansas	3,000	43,000	153,000	93,000 *	116
California	...	26,000	184,000	116,000	136
Colorado	...	...	34,000	25,000	130
Connecticut	72,000	90,000	126,000	83,000	133
Delaware	8,000	19,000	31,000	21,000	140
Florida	2,000	9,000	62,000	46,000	170
Georgia	24,000	95,000	292,000	195,000	130
Illinois	37,000	338,000	739,000	491,000	160
Indiana	51,000	336,000	501,000	325,000	162
Iowa	2,000	185,000	473,000	284,000	175
Kansas	...	...	336,000	194,000	194
Kentucky	31,000	183,000	283,000	179,000	109
Louisiana	7,000	48,000	100,000	70,000	74
Maine	173,000	189,000	145,000	99,000	151
Maryland	22,000	80,000	176,000	93,000	100
Massachusetts . . .	178,000	249,000	340,000	254,000	140
Michigan	31,000	205,000	412,000	253,000	152
Minnesota	...	...	233,000	119,000	151
Mississippi	11,000	67,000	279,000	184,000	162
Missouri	19,000	203,000	544,000	372,000	170
Nebraska	...	...	162,000	81,000	178
Nevada	...	...	8,000	5,000	166
New Hampshire . . .	90,000	83,000	64,000	45,000	133
New Jersey	59,000	119,000	217,000	123,000	110
New York	537,000	806,000	1,025,000	611,000	120
North Carolina . . .	19,000	117,000	298,000	186,000	133
Ohio	225,000	606,000	775,000	518,000	160
Oregon	...	...	46,000	31,000	170
Pennsylvania . . .	198,000	670,000	982,000	657,000	153
Rhode Island . . .	21,000	31,000	53,000	34,000	122
South Carolina . . .	17,000	47,000	178,000	122,000	122
Tennessee	31,000	163,000	374,000	192,000	128
Texas	...	63,000	245,000	154,000	97
Vermont	87,000	80,000	72,000	49,000	150
Virginia	47,000	155,000	475,000	286,000	134
Wisconsin	2,000	189,000	322,000	175,000	134
Territories	...	101,000	195,000	110,000	140
Total . .	2,025,000	5,693,000	11,170,000	7,020,000	140

In the preceding table the ratio of school children to population in 1885 is not correct, as the only basis for comparison is the Census of 1880, which figures are on an average 15 per cent. too low.

The two Virginias, be it noted, are put together as one State.

Taking the four great divisions of the Union, we find :—

States	Average Attendance		Ratio of Increase	Per 1000 Population in 1885
	1880	1885		
New England	541,000	564,000	4 per cent.	140
Middle . .	1,417,000	1,505,000	6 ,,	120
South . . .	1,509,000	1,852,000	22 ,,	120
West . . .	2,582,000	3,099,000	19 ,,	164
Total .	6,049,000	7,020,000	17 per cent.	140

The expenditure on primary schools in 1880 was :—

States	Amount	Ratio per Inhabitant	Per Pupil, Average Attending
	£	£ s. d.	£ s. d.
New England .	1,908,000	0 9 6	3 12 0
Middle	4,563,000	0 6 9	3 5 6
South	1,479,000	0 2 0	0 19 6
West	7,952,000	0 9 6	3 5 8
Pacific	683,000	0 10 9	5 3 0
The Union .	16,585,000	0 6 6	2 15 0

* Arkansas, Michigan, and Texas give no returns of "average attendance." For the sake of comparison, I assume the general ratio of the Union, that is, 63 per cent. of the children on the rolls.

The number of white population over twenty years of age who could not read was as follows :—

Year	Number	Percentage of Population
1840	550,000	7.8
1850	1,053,000	11.2
1860	1,218,000	9.2

The Census subsequently extended the inquiry to all persons, white or coloured, over ten years of age, with the result :—

Year	Unable to Read over Ten Years	Percentage of Population
1870	4,528,000	16.0
1880	3,019,000	8.1

This shows what progress education has made since 1870, the proportion of illiterate persons over ten years old having been reduced by one-half in a single decade. The greatest relative advancement is in the South, where (as shown above) the average attendance of school children rose 22 per cent. between 1880 and 1885. The number of children on the school rolls in 1860 and 1885 compared thus :—

States	Children on Rolls		Increase
	1860	1885	
New England .	722,000	801,000	11 per cent.
Middle . . .	1,694,000	2,431,000	44 ,,
South . . .	1,088,000	2,973,000	173 ,,
West . . .	2,189,000	4,965,000	127 ,,
Total . .	5,693,000	11,170,000	96 per cent.

The intermediate and superior instruction in 1880 showed thus :—

	Number	Teachers	Students
University colleges .	364	4,240	60,000
Academies . . .	1,860	5,960	183,000
Total .	2,224	10,200	243,000

The most celebrated University is Harvard, near Boston, founded in 1638. The number of universities and colleges in 1775 was ten, rising to 21 in 1791. The University students in 1880 were :—

Law 3,100	Medicine . . 12,000
Theology . . . 5,800	Arts . . . 30,200
Science . . . 8,900	
	Total . 60,000

The records of Indian education for 1888 sum up thus :—

Schools	No.	Pupils	Schools	No.	Pupils	Schools	No.	Pupils
State	78,304	2,959,000	Males . . .	126,298	3,193,700	Primary . . .	89,400	2,557,000
Private . . .	55,048	515,000	Females . . .	7,054	280,300	Secondary . .	43,952	917,000
Total .	133,352	3,474,000	Total .	133,352	3,474,000	Total .	133,352	3,474,000

The above is the number of children on the rolls, the average attendance being 78 per cent., say 2,710,000 children.

The Government subsidy is £600,000, fees and local rates £1,500,000. The Universities of Calcutta, Madras, and Bombay have 6000 students.

In the preceding tables no account is taken of orphanages, &c., which in 1880 instructed 774,000 children, viz. :—

	Number	Children
Orphanages	411	751,000
Blind, &c.	83	8,600
Reformatories	67	14,200
Total . .	561	773,800

The grand total of 1888 therefore reaches 13,126,000 persons receiving instruction, or 22 per cent. of the population.

CANADA

In 1850 there were but 1700 schools, and in 1887 the number exceeded 15,600. The returns for 1887 compare with 1879 as follows :—

		1879		1887
Schools . . .	12,786	...	15,607
Teachers . . .	16,297	...	18,942
Pupils . . .	866,000	...	984,000

The returns for 1887 were as follows :—

Province	Teachers	Pupils on Roll	Average Attendance	Expenditure, £
Ontario	7,775	504,000	248,000	700,000
Quebec	6,121	253,000	130,000	70,000
Nova Scotia . .	2,119	105,000	51,000	130,000
New Brunswick .	1,644	69,000	34,000	80,000
P. Edward I. . .	518	22,000	12,000	30,000
Manitoba, &c. .	765	26,000	12,000	90,000
Total .	18,942	979,000	487,000	1,100,000

The Universities of Quebec, Montreal, and Toronto are ably conducted and largely attended.

MOROCCO

There is a Mahometan university at Fez, attended by 700 students, but the studies are mostly limited to the Koran.

INDIA

Public instruction may be said to date from 1858, when the East India Company possessions were annexed to the British Crown. The records show as follows : —

Year	Schools	Scholars	Expenditure
1857 . . .	...	200,000	200,000
1874 . . .	43,188	977,000	760,000
1878 . . .	82,561	2,196,000	1,660,000
1888 . . .	133,352	3,474,000	2,100,000

AUSTRALIA

The returns for 1880 showed thus :—

	Schools	Teachers	Pupils		Expenditure, £
			Enrolled	Average Attendance	
N. S. Wales .	1,910	3,393	169,000	72,000	475,000
Victoria . .	2,430	4,950	269,000	120,000	553,000
New Zealand .	836	2,681	84,000	63,000	384,000
S. Australia .	370	837	36,000	20,000	87,000
Queensland .	338	924	43,000	24,000	124,000
Tasmania . .	171	323	12,000	8,000	24,000
W. Australia .	102	108	5,000	3,000	10,000
Total .	6,157	13,216	618,000	311,000	1,657,000

The progress of instruction in late years has been very rapid, as these figures show :—

Year	Schools	Pupils			Expenditure, £
		Boys	Girls	Total	
1861 . .	...	69,000	61,000	130,000	...
1871 . .	...	165,000	147,000	312,000	...
1881 . .	6,157	344,000	327,000	671,000	1,657,000
1888 . .	9,104	401,000	382,000	783,000	1,930,000

The returns for 1888 were as follows :—

	Pupils	Schools	Average
Public schools .	618,000	6,816	90
Private schools .	165,000	2,288	72
Total .	783,000	9,104	86

	Schools			Pupils on Roll	Average at Public Schools	Expenditure, £
	Public	Private	Total			
New South Wales	2,291	659	2,950	227,000	112,000	600,000
Victoria	1,930	752	2,682	280,000	129,000	620,000
New Zealand	1,208	300	1,508	130,000	96,000	380,000
South Australia	530	293	823	60,000	28,000	100,000
Queensland	544	134	678	59,000	39,000	180,000
Tasmania	220	150	370	22,000	9,000	40,000
Western Australia . . .	93	...	93	5,000	4,000	10,000
Total . .	6,816	2,288	9,104	783,000	417,000	1,930,000

The number of persons who could read and write in the several colonies, according to Census returns, was as follows :—

	Census of 1861					
	Number			Percentage		
	Read and Write	Read Only	Cannot Read	Read and Write	Read Only	Cannot Read
New South Wales	189,000	46,000	116,000	54	13	33
Victoria	328,000	57,000	156,000	60	11	29
Queensland	17,000	4,000	9,000	57	12	31
South Australia	72,000	19,000	36,000	57	14	29
New Zealand	68,000	9,000	22,000	68	9	23
Tasmania	48,000	13,000	29,000	53	15	32
Western Australia . . .	8,000	2,000	6,000	56	10	34
Total . . .	730,000	150,000	374,000	58	12	30

	Census of 1881					
New South Wales	507,000	49,000	195,000	68	7	25
Victoria	652,000	50,000	161,000	76	6	18
Queensland	137,000	14,000	63,000	65	6	29
South Australia	200,000	15,000	65,000	72	5	23
New Zealand	346,000	27,000	116,000	71	6	23
Tasmania	75,000	10,000	31,000	65	8	27
Western Australia . . .	20,000	2,000	8,000	67	7	26
Total . . .	1,937,000	167,000	639,000	70	7	23

From the preceding table it appears that in 1881 popular instruction was most general in Victoria, and that, on the other hand, Tasmania and Queensland stood lowest.

The percentage of persons able to sign the marriage register in Australasia was as follows :—

Year			Men	Women	Total
1861	.	.	81	69	75
1871	.	.	89	84	87
1881	.	.	96	93	95
1888	.	.	97	97	97

SOUTH AFRICA

The colonies of the Cape and Natal in 1888 showed :—

	Schools	Pupils	Average Attendance	Outlay, £
Cape . . .	1,407	88,000	47,000	220,000
Natal . .	124	11,000	9,000	30,000
Total .	1,531	99,000	56,000	250,000

There is a University at Cape Town with 250 students.

CEYLON

The returns for 1872 and 1888 compare thus :—

	Schools		Pupils	
	1872	1888	1872	1888
Public . .	602	1,357	36,000	102,000
Private . .	365	2,292	9,000	29,000
Total .	967	3,649	45,000	131,000

The Government subsidy is £40,000 yearly. About 5 per cent. of the whole population attend school.

CYPRUS

In 1888 the returns were as follows :—

	Schools	Pupils
Christian	219	10,400
Mahometan . . .	86	3,100
Total . .	305	13,500

Annual expenditure, £9000, one-third being a State grant.

MINOR COLONIES

The latest returns show as follows :—

	Schools			Pupils		
	Public	Private	Total	Public	Private	Total
Hong-Kong	97	107	204	6,000	2,000	8,000
Singapore .	150	32	182	7,000	3,000	10,000
Mauritius .	144	...	144	16,000	...	16,000
Jamaica. .	771	...	771	72,000	...	72,000

There are many private schools at Jamaica, but no returns.

JAPAN

Education has lost ground of late years, viz. :—

	1882	1888
Schools	30,660	27,550
Teachers	89,600	62,600
Pupils	3,091,000	2,830,000

There are sixteen free libraries. The number of new works published was 9550 in the year 1888. There were 470 newspapers and magazines.

SOUTH AMERICA

The Argentine Republic has taken the foremost place in the South American continent. The official returns for 1876 and 1888 were :—

	1876	1888	Increase
Schools	1,946	3,227	65 per cent.
Teachers	5,893	7,332	23 „
Pupils	116,200	254,600	119 „

The returns for 1888 show as follows :—

	Schools	Teachers	Scholars
State	2,263	4,744	175,200
Private	964	2,588	79,400
Total . .	3,227	7,332	254,600

The ratio of school-children was 70 per 1000 of the population. The above includes 2 universities and 34 colleges, with 13,000 students.

Brazil in 1880 had 4 universities, 26 colleges, and 5890 schools, the whole numbering 191,000 pupils, or 16 per 1000 of population.

Chile in 1880 had 1650 schools, attended by 98,000 children, equal to 50 per 1000 of population, and a university at Santiago.

ELECTORS

The numbers of electors and voters in various countries are :—

	Electors	Voters	Percentage who Vote	Per 1000 of Population		
				Electors	Voters	Year
United Kingdom	5,837,000	4,550,000	78	155	121	1889
United States	...	10,868,000	...	...	176	1888
France	9,948,000	8,012,000	81	266	220	1880
Germany	9,124,000	5,832,000	64	205	130	1880
Spain	942,000	610,000	63	57	36	1880
Austria	1,291,000	462,000	36	60	22	1880
Switzerland	639,000	256,000	40	230	92	1880
Portugal	217,000	145,000	67	54	36	...
Belgium	118,000	86,000	72	21	15	1880
Italy	627,000	370,000	59	21	13	1880
Sweden	43,000	17,000	40	10	4	1880

The returns for the United Kingdom show the electors for 1889, and the ratio of voters is assumed to be as at the election of 1885, that is, 78 per cent.

UNITED KINGDOM

	Percentage of Electors				Ratio to 100 Inhabitants			
	1835	1871	1881	1889	1835	1871	1881	1889
England	79.5	80.8	82.4	77.2	4.6	9.0	9.7	15.8
Ireland	11.7	9.0	7.5	13.0	1.2	4.2	4.4	16.0
Scotland	8.8	10.2	10.1	9.8	3.0	7.6	8.4	14.2
United Kingdom . . .	100.0	100.0	100.0	100.0	3.3	8.1	8.9	15.5

Until 1885 Ireland had less than half her fair share of electors for population. The proportion of county and borough electors in the United Kingdom has been as follows :—

	Electors			Ratio		
	1846	1881	1885	1846	1881	1885
County . . . . ,	622,000	1,198,000	3,497,000	58.5	39.0	61.0
Borough	445,000	1,879,000	2,219,000	41.5	61.0	39.0
Total . .	1,067,000	3,077,000	5,716,000	100.0	100.0	100.0

The franchise has been extended at intervals, and now counts seven times as many electors as in 1835, viz. :—

Year	England	Scotland	Ireland	U. Kingdom
1835	668,000	73,000	98,000	839,000
1846	845,000	93,000	129,000	1,067,000
1871	2,066,000	260,000	227,000	2,553,000
1881	2,538,000	310,000	229,000	3,077,000
1889	4,502,000	572,000	763,000	5,837,000

The franchise of 1885 exactly reversed the ratios of 1881. The proportion of members of Parliament to electors in the three kingdoms is as follows :—

England . . . . . 1 to 9100
Scotland . . . . . 1 ,, 8000
Ireland . . . . . 1 ,, 7400
United Kingdom . . . 1 ,, 8700

Of 100 electors, 80 vote in England, 79 in Scotland, 67 in Ireland, the ratio for the whole United Kingdom being 78—say 4,500,000 voters.

UNITED STATES

The presidential elections since 1824 have been as follows :—

Year	Electoral Votes			Popular Votes			Votes per 100 of Population
	Winner	Other Candidates	Total	Winner	Others	Total	
1824	99	162	261	156,000	196,000	352,000	3
1828	178	83	261	647,000	509,000	1,156,000	10
1832	219	67	286	688,000	562,000	1,250,000	10
1836	170	124	294	762,000	737,000	1,499,000	10
1840	234	60	294	1,275,000	1,136,000	2,411,000	14
1844	170	105	275	1,337,000	1,361,000	2,698,000	14
1848	163	127	290	1,360,000	1,511,000	2,871,000	13
1852	254	42	296	1,601,000	1,542,000	3,143,000	13
1856	174	122	296	1,838,000	2,217,000	4,055,000	15
1860	180	123	303	1,866,000	2,811,000	4,677,000	15
1864	212	102	314	2,216,000	1,809,000	4,025,000	12
1868	214	103	317	3,015,000	2,710,000	5,725,000	16
1872	286	80	366	3,597,000	2,870,000	6,467,000	16
1876	185	184	369	4,034,000	4,375,000	8,409,000	19
1880	214	155	369	4,449,000	4,761,000	9,210,000	18
1884	219	182	401	4,911,000	5,145,000	10,056,000	19
1888	...	...	...	5,186,000	5,682,000	10,868,000	18

FRANCE

The most important elections, known as plebiscites, were as follows :—

Year	For	Against	Total	Per 100 Inhabitants
1793	1,801,000	12,000	1,813,000	7
1803	3,568,000	9,000	3,577,000	12
1815	1,302,000	4,000	1,306,000	4
1852	7,828,000	253,000	8,081,000	23
1870	7,336,060	1,561,000	8,897,000	25

The general election of 1881 showed as follows :—

Class					Per Cent.
Republicans .	.	.	4,570,000		45.7
Orleanists	.	.	1,103,000		11.1
Bonapartists .	.	.	538,000		5.4
Not voted .	.	.	3,740,000		37.8
Total	.	.	9,951,000		100.0

ITALY

The following elections resulted thus :—

Year	Electors on Roll	Voted	Voted, Per Cent.	Voters per 100 Inhabitants
1861	421,000	240,000	57	1.1
1865	504,000	272,000	54	1.1
1870	535,000	241,000	45	0.9
1876	607,000	358,000	59	1.3
1880	627,000	370,000	59	1.3

GERMANY

The members from the various States composing the Imperial Council are as follows :—

Prussia	. . .	17	Wurtemburg	.	4	Mecklenburg .	2
Bavaria	. . .	6	Baden	. . .	3	Brunswick . .	2
Saxony	. . .	4	Hesse	. , . .	3	Small States .	17

Making a total of 58 members of the Bundesrath.

The voters and electors of the Empire were as follows :—

Year	Electors	Voters	Percentage Voting	Electors per 1000 Inhab.
1874	8,523,000	5,292,000	62	200
1880	9,124,000	5,832,000	64	205

BELGIUM

The following table shows the registered electors and the numbers that voted :—

Year	Electors	Voted
1841	24,900	19,100
1859	61,900	45,100
1878	125,100	64,200
1884	195,700	146,800

ELECTRICITY

Lights.—The following are some of the largest lights in use :—

	Candle-Power		Candle-Power
Kensington Museum	2,000	Marseilles, lighthouse	40,000
Crystal Palace	3,000	Palais d'Industrie,	
British Museum	5,000	Paris	150,000
Liverpool Docks	6,000	Sydney, lighthouse	180,000
San Josè, California	24,000		

The cost varies from 10d. an hour at Kensington, to 27d. at Marseilles, both Brush lights.

The arc light at Liverpool costs 15d., the Siemens at the British Museum 24d. The San Josè electric moon stands on a tower 200 feet high, is worked by a 9-horse engine, and shows light for two miles around. The Sydney light is visible 50 miles, being the most powerful yet made. The Marseilles gives six times more light than the old system, at a saving of 9d. per hour. The Kensington Museum saves £235 a year by the change. The smallest lights are Swan and Edison's arc lights of 8 candle-power for domestic use. A contract with the Nottingham Municipality in May 1883 was for works and plant for supplying 60,000 Swan lamps of 20 candle-power. The cost of instalment was £220,000, and after allowing for all expenses and interest on capital, the electric light would cost 40 per cent. less than gas, and give 40 per cent. more light. In the United States, in 1890, there were 3,230,000 electric lights in use, 90 per cent. of the incandescent kind. Turin is lit with 73,000 candle-power (equal to 6000 gas lamps), at a cost of £5200 per annum. The gas only cost £3200.

In 1885 the *Journal of Arts* said :—" As regards the electric light, at the present time upwards of 600 dynamos and 20,000 lamps are in use, and the cost of their installation may be estimated at about one million sterling."

The Lane-Fox system may be described as follows :—

Horse-Power	Lights	Candle-Power	Aggregate Candle-Power
3	36	10	360
5	30	20	600
8	40	25	1,000
20	60	40	2,400

The Brush system, with an engine 40 horse-power, serves as follows :—

Number of Lights	Candle-Power	Aggregate Candle-Power
1	150,000	150,000
12	8,000	96,000
40	2,000	80,000
400	150	60,000

One engine of the above power feeds 400 lamps on a line of 30 miles, consuming 150 lbs. coal per hour, as compared with one ton per hour for gaslight over same length.

The Yablochkoff system is said to supply 100 candle-power at a cost of 1d. per hour, having reduced the cost from 6d. an hour in 1877.

The number of Edison lights, underground wires, in use in Europe on the 1st January 1889 was as follows :—

Berlin	73,400	Hamburg	5,000	Schwerin	3,000
Hanover	20,000	Dresden	4,000	Rotterdam	2,500
Milan	20,000	Lübeck	3,000	Munich	2,500
London	6,000	Turin	3,000	St. Etienne	4,000
Liverpool	2,000	Elberfeld	3,000	Strasburg	2,500

besides Brunswick, Stuttgart, Halle, Crefeld, and Darmstadt, making a total of 170,000.

According to the *Magasin du Louvre* the relative cost of lighting is—gas 100, Edison 75, Yablochkoff 55 (in 1884).

MOTOR

1873. At the Vienna Exhibition a pump was worked at a distance of 1400 yards by means of an electric wire.

1879. At Sermaize, La Marne, a field of six acres was ploughed in six hours with a wire attached to a 12-horse engine a mile distant.

1881. At Oisiel a farmer named Meiner ploughed a large field by connecting an electric wire with a waterfall.

1882. Project to tap the force of Niagara by constructing turbines, the power of water being estimated at ten million cubic feet per second, or eight million horse-power, and to transmit this force through the United States. Estimated value, £300,000 a day, or 108 millions sterling per annum. A copper wire, half-inch diameter and 300 miles long, would suffice to convey 30,000 horse-power from Niagara to New York.

1883. Four electric locomotives constructed by the New York Railway Company to do the work of 160 ordinary locomotives. Tramcar at Kew, near London, running by electricity at six miles an hour, one accumulator of 80 lbs. sufficing for seven hours' work ; cost 6s. per day, against 26s. worked by horses. Electric railway from Portrush to Giant's Causeway, Ireland. Electric screw-boat on the Thames at Greenwich, 9 miles an hour.

1889. City of Buffalo contracts with Niagara Power Company for 10,000 horse-power at £30,000 per annum, to light the city and drive factories ; cable, 20 miles long.

1890. There are at present 645 miles of street railways operated by electricity in the United States and Canada. At present 45 electric roads are in course of construction, aggregating 512 miles of way, for which 167 cars are being built. In a short time the total number of electric roads will be 854, running 1927 motor and trailing cars, with a mileage of 1158. See *Telegraph, Telephones.*

EMIGRATION

Since the battle of Waterloo, no fewer than 27 millions of people in Europe have left their homes, broken up family ties, and sought their futures in new lands : *—

	1816–50	1851–88	Total
United Kingdom	2,369,000	7,491,000	9,860,000
France	320,000	1,220,000	1,540,000
Germany . . .	1,130,000	4,540,000	5,670,000
Russia	50,000	350,000	400,000
Austria	130,000	1,160,000	1,290,000
Italy	320,000	3,260,000	3,580,000
Switzerland . .	150,000	610,000	760,000
Spain	160,000	580,000	740,000
Portugal . . .	90,000	450,000	540,000
Sweden and Norway .	100,000	970,000	1,070,000
Denmark . . .	40,000	180,000	220,000
Holland . . .	25,000	320,000	345,000
Belgium . . .	90,000	880,000	970,000
Other countries .	20,000	200,000	220,000
Europe	4,994,000	22,211,000	27,205,000

* Besides the exodus of Europeans there has been an efflux of Coolies.

The emigration from India averages 22,000 yearly, the number registered abroad in 1880 being 335,000, viz. :—

Mauritius . . 141,000	Trinidad . . 26,000
Demerara . . 54,000	Natal . . . 18,000
Bourbon . . . 43,000	Jamaica, &c. . . 53,000

Numbers of Chinese Coolies emigrate to Cuba and Peru, where they are ill-treated. Cuba imported 116,000 in the years 1866-73, and refused to let them return to China on the expiration of their contracts ; 67,000 died. The number imported into Peru in the year 1871 was 38,650, of whom many were put to death. In 1880 in one province 2000 were massacred.

The destinations of European emigrants were :—

	Down to 1850	1851-88	Total
United States .	2,633,000	12,330,000	14,963,000
Australia . . .	140,000	1,710,000	1,850,000
Canada. . . .	790,000	977,000	1,767,000
Argentina . . .	80,000	1,450,000	1,530,000
Brazil	90,000	790,000	880,000
Uruguay . . .	40,000	170,000	210,000
Algeria	140,000	420,000	560,000
Cape Colony . .	30,000	130,000	160,000
Various countries	1,051,000	4,234,000	5,285,000
Total . .	4,994,000	22,211,000	27,205,000

The exact proportions of sex and age cannot be given ; the following table is not of uniform importance, some of the countries being classed from observations of ten years, others for a single year.

	Emigrants from							
	United Kingdom	Germany	Holland	Austria	Sweden	Denmark	Italy	Switzerland
Men	46	50	52	32	45	51	70	55
Women . . .	32	25	23	28	35	26	18	22
Children . .	22	25	25	40	20	23	12	23
Total .	100	100	100	100	100	100	100	100

If the proportions for the unascertained countries be taken on the basis of the first six countries in the above table, the whole emigration from Europe over the seas for 74 years may be put down thus :—

Men .	.	.	.	.	.	11,550,000
Women	.	.	.	.	.	6,730,000
Children	.	.	.	.	.	5,120,000
		Total	.	.	23,400,000

The numbers of those who died on sea can never be arrived at even approximately. Kapp says that 20,000 Irish perished of ship-fever in 1846-47. Many vessels lost 20 per cent. If we were to adopt the death-rate on Government emigrant-ships to Australia and Cape Colony, namely, 5 per 1000 for men, 6 for women, and 52 for children, the number of the foregoing who died at sea would be as follows :—

Men	.	.	.	.	.	58,000
Women	.	.	.	.	.	40,000
Children	.	.	.	.	.	266,000
		Total	.	.	364,000

Births partly compensate for deaths, being about 1 in 200 women carried.

The professions of emigrants have not been uniformly classed ; the following conveys a general idea :—

	Emigrants from			
	United Kingdom	Germany	Italy	Sweden
Educated . .	7	17	6	} 35
Artisans, &c. .	55	47	43	
Farm labourers	18	24	39	32
Servants . .	20	12	12	33
Total .	100	100	100	100

The amount of money which the emigrants took to their new homes was found to average as follows :—

	Per Head		
	£	s.	d.
Germans, 1848-52	29	10	0
„ 1853-54 . . .	35	0	0
British in Canada, 1834 . . .	33	5	0
New York arrivals, 1856 . .	14	0	0

A moderate estimate of £10 per able-bodied man would result as follows :—

To	£
United States	75,000,000
Australia	9,200,000
Canada	8,800,000
River Plate	8,700,000
Brazil	4,400,000
Various countries . . .	9,400,000
Total . .	115,500,000

The great value of the emigrants, meantime, has been in their capacity for work. Dr. Farr valued a man of 20 at £234 sterling, Engel at £200, and other writers at £260.

In Australia it is found that each immigrant, big and little, increases the revenue by £4 yearly. In the Argentine Republic the influx of 800,000 immigrants in twenty years ending 1883 was accompanied by a rise of £4,800,000 in the revenue, say £6 per head. But it is in the United States where the value of immigration is most apparent ; for example, a group of 200 persons settled in 1858 on the territory now known as the State of Colorado, and in 1880 there were 1220 miles of railway, 14 daily papers, 190,000 inhabitants, real and personal estate valued at 9 millions sterling, agricultural products worth £700,000 a year ; in 1886 the value of property in Colorado had risen to 27 millions sterling.

In the Republic of Uruguay in 1884 an official report showed 166,000 European settlers, holding property worth 52 millions. In the city of Buenos Ayres 40,000 Europeans in 1883 held bank-deposits and real property worth £47,600,000, besides Irish and Scotch sheep-farms valued at 21 millions sterling. The Census report of the United States in 1880 showed an increase of wealth since 1850 of 7593 millions sterling, and as immigrants were 12½ per cent. of the population, it follows that they stand for 949 millions of the increase.

In Canada the agricultural capital rose from 140 millions in 1861 to 343 millions in 1887, and as immigrants formed 30 per cent. of the population, they are entitled to take credit for that share of the increase, say 61 millions. Agricultural constituting only 50 per cent. of the wealth of Canada, the total accumulation due to the immigrants will be 122 millions sterling.

There has been, moreover, a notable increase of wealth in the Brazilian provinces of Rio Grande do Sul, San Paulo, &c., where numerous German colonies have converted forests into productive lands. The following table is exclusive of Brazil and Cape Colony.

Country	Wealth Accumulated by Immigrants				
	Period	Arrivals	Mean European Population	Wealth, Million £	Yearly Average per Head
					£ s. d.
United States	1850-80	8,002,000	4,600,000	949	6 17 6
Australia	1850-88	1,710,000	1,200,000	714	15 12 0
Argentine Republic	1850 84	880,000	300,000	80	7 14 0
Uruguay	1850-84	305,000	166,000	52	8 18 6
Canada	1861-87	799,000	700,000	122	6 14 0

Except in Australia, the annual accumulations have been pretty much on a level, about £7 to £8 per annum, this ratio applying equally to men, women, and children. From the foregoing figures we can construct a table of the accumulations of emigrants between 1850 and 1888 as follows :—

Emigrants	Mean Number Abroad	Accumulation, Million £	Per Head, £
English . . .	1,200,000	410	342
Scotch	250,000	95	380
Irish	1,520,000	411	270
Germans . . .	1,700,000	452	266
Various nations .	2,296,000	460	200
Total .	6,966,000	1,828	261

It is a coincidence that each emigrant accumulated in the last 38 years about £260, and that this is the precise value set by some writers on each able-bodied adult. The strongest impulse to immigration was given by the Homestead Law of the United States and similar measures, giving lands to colonists at nominal or low prices. Down to 1886 the United States Government had thus disposed of 255 million acres, the Australian colonies 101 million acres. (See *Lands*.)

The total number of persons living out of their own country is approximately as follows (exclusive of Coolies):—

		Per 1000 Inhab.
In Europe * . .	2,537,000	10
,, United States .	8,510,000	137
,, Australia .	1,200,000	300
,, River Plate .	1,086,000	240
,, Canada . .	800,000	160
,, Brazil . .	460,000	40
,, Algeria . .	190,000	50
,, Egypt . .	91,000	14
,, South Africa .	50,000	33
,, Chile . .	40,000	15
,, China and Japan .	6,000	...
,, Other countries .	200,000	...
Total . .	15,170,000	...

Foreign residents in the various countries of Europe are as follows :—

	Number		Number
U. Kingdom . .	155,000	Sweden and Norway	26,000
France . . .	1,115,000	Denmark . . .	61,000
Germany . . .	276,000	Holland . . .	69,000
Russia . . .	148,000	Belgium . . .	143,000
Austria . . .	127,000	Switzerland . .	211,000
Italy . . .	60,000	Roumania . . .	89,000
Spain	37,000	Greece . . .	20,000

* The number of foreigners in the various European States being 2,537,000, as shown above, it is made up approximately as follows :—

Germans	.	540,000	Spaniards	.	120,000
Belgians	.	460,000	Dutch	.	72,000
Austrians	.	360,000	British	.	70,000
Italians	.	330,000	Russians	.	70,000
French	.	180,000	Swedes	.	60,000
Swiss	.	140,000	Various	.	135,000

Comparing the above figures with the emigration statistics the result is approximately as follows :—

Period	Emigrated	Now Living Abroad
1815-50	4,994,000	430,000
1851-80	15,868,000	8,640,000
1881-88	6,343,000	6,100,000
74 years	27,205,000	15,170,000

from which it appears that 12,035,000 either died abroad or returned to their own countries.

The following table shows European emigration in 1888, as compared with population :—

From	Number	Per Cent. of Population
England	171,000	0.60
Scotland	36,000	0.90
Ireland	73,000	1.60
United Kingdom . .	280,000	0.74
France	23,000	0.06
Germany	104,000	0.23
Austria	46,000	0.12
Italy	297,000	1.00
Spain	71,000	0.40
Portugal	13,000	0.30
Holland	18,000	0 40
Belgium	23,000	0.40
Scandinavia . . .	77,000	0.90
Switzerland . . .	8,000	0.27

Making a total of 960,000 souls. Their destination was approximately as follows :—

United States	570,000
South America	280,000
British colonies	105,000
Various parts	5,000
	960,000

Emigrants from Northern Europe still go mostly to the United States; those from the Mediterranean to South America. The current of emigration to Canada and Australia is chiefly British.

UNITED KINGDOM

Official returns may be summed up as follows :—

		Per Annum
1815-29 . . .	314,000	21,000
1830-49 . . .	2,164,000	108,000
1850-69 . . .	4,278,000	214,000
1870-79 . . .	2,153,000	215,000
1880-88 . . .	3,228,000	359,000
74 years . . .	12,137,000	164,000

The above, however, includes foreign emigrants, who formed about 22 per cent. of the total. The number of British subjects was a little under ten millions, the following classification of natives of the three kingdoms being

as close as can be ascertained, the figures before 1840, as Porter shows, being defective :—

Period	English	Scotch	Irish	Total	Per Annum
1815–34	110,000	30,000	420,000	560,000	28,000
1835–50	320,000	80,000	1,409,000	1,809,000	113,000
1851–60	640,000	183,000	1,231,000	2,054,000	205,000
1861–70	650,000	158,000	867,000	1,675,000	168,000
1871–80	970,000	166,000	542,000	1,678,000	168,000
1881–88	1,245,000	228,000	612,000	2,085,000	261,000
74 years	3,935,000	845,000	5,081,000	9,861,000	133,000

The destinations were as follows :—

To	1815–75	1876–88	Total
United States . .	4,425,000	1,807,000	6,232,000
Canada	1,260,000	317,000	1,577,000
Australia . . .	1,022,000	485,000	1,507,000
Cape, &c. . . .	317,000	228,000	545,000
Total . .	7,024,000	2,837,000	9,861,000

The United States took 140,000 a year in the 13 years ending 1888, Canada 25,000, and Australia 37,000 settlers.

The returns for the years 1888–89 were as follows :—

	Emigrants			Destination	
	1888	1889		1888	1889
English	170,000	164,000	United States . . .	196,000	169,000
Scotch	37,000	25,000	Canada	35,000	28,000
Irish	73,000	65,000	Australia	31,000	28,000
			Various	18,000	29,000
United Kingdom . .	280,000	254,000	Total . .	280,000	254,000

At all periods the United States attracted the bulk of the emigration.

	United States	British Colonies, &c.	Total	U. States Ratios
1815–50	1,308,000	1,061,000	2,369,000	55.2
1851–60	1,257,000	797,000	2,054,000	61.3
1861–70	1,185,000	490,000	1,675,000	70.7
1871–80	1,088,000	590,000	1,678,000	65.0
1881–88	1,394,000	691,000	2,085,000	66.9
74 years	6,232,000	3,629,000	9,861,000	63.2

The respective destinations of the people of the three kingdoms were approximately as follows :—

	United States	Canada	Australia	Cape, &c.	Total
English . .	1,893,000	872,000	820,000	350,000	3,935,000
Scotch . .	265,000	225,000	247,000	108,000	845,900
Irish . . .	4,074,000	480,000	440,000	87,000	5,081,000
Total . .	6,232,000	1,577,000	1,507,000	545,000	9,861,000

The number of colonists who survive and are still abroad, and the number of their children (estimated according to result of United States Census in 1880) may be set down approximately as follows :—

Settlers in	Now Living	Children	Population
United States .	3,180,000	4,310,000	7,490,000
Canada . . .	720,000	940,000	1,660,000
Australia . . .	1,080,000	1,400,000	2,480,000
Cape, &c. . . .	360,000	470,000	830,000
Total . .	5,340,000	7,120,000	12,460,000

In recent years there has been a steady influx of returned emigrants, averaging 78,000 for the years 1881–88, or about 30 per cent. of the number of emigrants in that period. The remittances by Irish settlers in the United States to their friends at home, from 1851 to 1887, amounted to £32,200,000. The accumulations of wealth by British and Irish emigrants since 1850, as already shown, amounted to 916 millions sterling.

The number of foreigners residing in the United Kingdom has been as follows :—

Year	Number		Per 1000 *Inhab.*
1841 . . .	36,000	....	1.3
1851 . . .	62,000	....	2.3
1861 . . .	102,000	....	3.5
1871 . . .	161,000	....	5.2
1881 . . .	155,000	....	4.4

FRANCE

In ten years ending 1887 the number of emigrants that left French ports was 460,000, but of these only 55,000 were French, say 5500 per annum.

In five years ending 1872 the number of French emigrants from Havre averaged 5100 yearly. The above figures do not include settlers going to Algeria (for which see *Colonies*, p. 126).

Approximately the emigration from France has been as follows :—

	1840–88	Per Annum
United States	320,000	6,600
Algeria	300,000	6,300
Argentina	190,000	4,000
Uruguay	50,000	1,000
Egypt	30,000	600
Europe	450,000	9,500
Total . .	1,340,000	28,000

The number of French living abroad in 1860 and 1885 compared as follows :—

In	1860	1885
Belgium	35,000	51,000
Switzerland . . .	45,000	59,000
United Kingdom . .	16,000	20,000
Spain	11,000	20,000
Italy	5,000	11,000
Egypt	14,000	16,000
Algeria	72,000	262,000
United States . .	110,000	107,000
South America . .	59,000	167,000
Total . .	367,000	713,000

The chief currents of French emigration were :—

	Number	Period	Number now Living
United States . . .	314,000	1820–80	100,000
Argentine Republic .	156,000	1860–88	120,000
Algeria	300,000	1840–88	160,000
Uruguay	44,000	1860–88	30,000

The influx of foreigners is, meantime, greater than the outflow of emigration. According to Census returns we find :—

Year		Foreigners in France		Ratio to Pop. per 1000
1851 .	. .	379,000	...	11
1861 .	, .	497,000	...	13
1872 .	. .	731,000	...	20
1886 .	. .	1,115,000	...	29

Molinari says that in fifteen years France received (1872–87) able-bodied emigrants equal to an accession of 140 millions sterling to the national wealth. The foreigners living in France at various dates were as follows :—

	1851	1872	1881
Belgians . . .	128,000	348,000	432,000
Italians	63,000	113,000	241,000
Germans . . .	57,000	39,000	82,000
Swiss	26,000	43,000	66,000
Spaniards . . .	30,000	53,000	74,000
English	20,000	26,000	37,000
Various	55,000	109,000	69,000
Total . .	379,000	731,000	1,001,000

Paris has 213,000 foreign residents, being 9 per cent. of the population.

In 1888 the Government expelled the following foreigners from France :—

	Men	Women	Total
Spaniards . . .	1,575	37	1,612
Belgians . . .	1,296	120	1,416
Germans . . .	504	69	573
Various	590	58	648
Total .	3,965	284	4,249

GERMANY

The Archivio figures are as follows :—

Period		Emigrated		Per Annum
1820–49 .	. .	168,000	...	5,600
1850–59 .	. .	660,000	...	66,000
1860–69 .	. .	750,000	...	75,000
1870–79 .	. .	790,000	...	79,000
1880–86 .	. .	1,342,000	...	192,000
66 years .	.	4,710,000		72,000

The *Almanach de Gotha* says that 4,900,000 Germans emigrated between 1820 and December 1887, of which 3,700,000 to the United States. Duval, however, makes the efflux down to 1859 much greater, as follows :—

1820–29 .	.	.	.	.	.	49,600
1830–39 .	.	.	.	.	.	220,900
1840–49 .	.	.	.	.	.	661,200
1850–59 .	.	.	.	.	.	1,017,100
40 years	.	.	.	.	.	1,948,800

Gaebler is of the same opinion, making the number 1,800,000 from 1819 to 1855. It must be observed, meantime, that the Archivio gives only the departures by sea, whereas Gaebler includes the total outflow by sea and land. Official returns give much lower figures. For example, the Prussian Blue-book makes the total for thirty years down to 1871 as 642,000, and the Board of Trade Abstract for eighteen years ending 1888 only 1,771,000, a total of 2,413,000, which is less than half the reality. If we consult the statistics of Germans in United States, Russia, Brazil, River Plate, and various countries in Europe, we may form an approximate table as follows :—

Period	Actual Emigration		Official Figures	
	Number	Per Annum	Number	Per Annum
1821–40	270,000	13,500	...	...
1841–70	2,880,000	96,000	642,000	21,400
1871–80	1,050,000	105,000	626,000	62,600
1881–88	1,470,000	184,000	1,365,000	170,000
68 years	5,670,000	84,000	2,633,000	39,000

	Actual Emigration 1821–88	Official 1871–87
United States . . .	4,316,000	1,880,000
Brazil	84,000	31,000
Spanish America . .	70,000	19,000
Australia	60,000	17,000
Other parts . . .	1,140,000	44,000
Total . .	5,670,000	1,991,000

In official returns only persons going out of Europe are considered emigrants.

Immigration into Germany is small, the number of resident foreigners being less than one-tenth of that of Germans abroad. The Census of 1880 showed a total of 276,000 resident foreigners, thus :—

Austrians	118,000	Dutch . .	18,000	English	. 11,000
Swiss . .	28,000	French . .	17,000	Swedes	. 10,000
Danes . .	24,000	Russians .	15,000	Various	. 35,000

The total makes up less than 6 in 1000 of population.

RUSSIA

The United States Census of 1880 showed 49,000 Poles and 36,000 Russians, but since that year there has been a great influx. In 1888 no fewer than 37,300 Russian settlers arrived. In 1874–78 the severity of military service drove 40,000 Mennonites from the Empire, who made settlements at Manitoba, San Paulo, and Buenos Ayres, where they have prospered. Jews have also in late years been expelled in large numbers.

In a period of 36 years down to 1886, according to police reports, there were 1,733,000 foreigners who settled in Russia, viz. :—

Germans .	.	.	.	.	952,000
Austrians	.	.	.	.	677,000
Various .	.	.	.	.	104,000
Total	.	.			1,733,000

These figures are a mere fiction of the Russian police ; the actual number of foreigners in Russia at the Census of 1880 was only 148,000.

AUSTRIA-HUNGARY

In 1880 there were 135,000 Austrians and Hungarians in the United States. The official returns for ten years' emigration ending 1886 show as follows :—

United States . .	.	.	227,000
Argentina .	. .	.	10,000
Various .	. . . . .	.	37,000
Total	.	.	274,000

The number of Austrian immigrants who arrived in the United States in 1888 was 42,000. Before 1880 the annual emigration averaged only 7000 yearly. The total for ten years ending 1880 was 71,000, of whom 46,000 were Bohemians.

ITALY

Official returns of the Argentine Republic show that in 28 years ending 1888 there were landed at Buenos Ayres and Rosario 550,000 Italians. In the same period 80,000 landed at Montevideo. There were 73,000 who emigrated to the United States in sixty years, of whom 44,000 were living in 1880. Official returns, much below the reality, give the following for nine years down to December 1887 :—

River Plate	.	.	.	.	.	261,000
United States	.	.	.	.	.	153,000
Brazil	.	.	.	.	.	98,000
North Africa	.	.	.	.	.	37,000
Various	.	.	.	.	.	68,000
			Total	.	.	617,000

Carpi shows that the official returns are much less than the real number, because they fail to include Italians who go to the other parts of Europe. An official report published in 1883 showed the number of Italians living abroad as follows :—

					1873	1883
Argentina	.	.	.	.	88,000	254,000
Brazil and Peru	.	.	.	28,000	115,000
Uruguay	.	.	.	.	32,000	40,000
France	.	.	.	.	118,000	241,000
Austria	.	.	.	.	27,000	44,000
Switzerland	.	.	.	.	18,000	42,000
United States	.	.	.	.	70,000	170,000
Levant, &c.	.	.	.	.	95,000	127,000
		Total	.	.	476,000	1,033,000

The following table shows approximately the currents of emigration :—

	United States	South America	Other Countries	Total	Annual Average
1821–40	3,000	10,000	150,000	163,000	8,100
1841–60	11,000	30,000	400,000	441,000	22,000
1861–70	13,000	180,000	460,000	653,000	65,300
1871–80	46,000	430,000	700,000	1,176,000	117,600
1881–87	153,000	365,000	629,000	1,147,000	164,000
67 years	226,000	1,015,000	2,329,000	3,580,000	54,000

According to the Archivio the emigration in the years 1882–86 summed up 803,000, whereas the official figures for the same years do not exceed 363,000. In the preceding decade Professor Carpi made the average about 110,000 yearly, and estimated the number of returned emigrants at 60 per cent. of those who leave in any year. This is about double the proportion of the stream of emigration from Buenos Ayres to Italy, compared with the number of Italians arriving there. It may be therefore assumed that 33 per cent. of the above emigrants returned to Italy. The account may be put down thus :—

Settled in River Plate	.	.	.	.	560,000
,,	Brazil	.	.	.	.	70,000
,,	United States	.	.	.	170,000
,,	other countries	.	.	1,050,000
Died	.	.	.	.	.	.	540,000
Returned to Italy	.	.	.	.	1,190,000
		Total emigrated	.	3,580,000

The number of foreign residents in Italy is only 60,000, including 16,000 Austrians, 12,000 Swiss, 11,000 French, 7000 English, and 5000 Germans, the whole being as 2 per 1000 of the population.

SWITZERLAND

The returns for ten years ending 1887 are as follows :—

United States	.	.	.	.	.	70,000
South America	.	.	.	.	.	11,000
			Total	.	.	81,000

By the Census of 1880 it appears there were 89,000 Swiss in the United States. There are 15,000 in the Argentine Republic. A large number of foreigners reside in Switzerland, and the number steadily increases :—

					1870	1880
French	.	.	.	.	62,000	54,000
Germans	.	.	.	.	57,000	95,000
Italians	.	.	.	.	18,000	42,000
Various	.	.	.	.	14,000	20,000
		Total	.	.	151,000	211,000

This is more than 7 per cent. of the population.
The principal centre of foreign residents is Geneva, viz. :—

	Number of Inhab.		Percentage	
	1850	1870	1850	1870
Swiss	18,400	17,600	58	38
Foreign	13,300	28,800	42	62
Total	31,700	46,400	100	100

SPAIN

Official returns at Buenos Ayres show that in 32 years down to 1888 there were landed in the Argentine Republic 172,000 Spaniards. In the same interval those landed at Montevideo were about 80,000. The United States report shows only 29,000 in 60 years down to 1880, the actual number of Spanish settlers in the said year being 5100, but in the ensuing years there was a notable increase, 9000 having arrived between 1880 and 1888. Spain also sends out numbers to Cuba and her other colonies. The currents of emigration have been approximately :—

Period	River Plate	Other Countries	Total	Per Annum
1861–80 . . .	160,000	180,000	340,000	17,000
1881–88 . . .	92,000	50,000	142,000	18,000
28 years . . .	252,000	230,000	482,000	17,200

The annual outflow at present is little over 1 per 1000 of the population. About 5 per cent. of those who emigrate return to Spain.

In 1888 there were Spaniards residing abroad as follows :—Algeria, 114,000 ; River Plate, 99,000 ; France, 74,000 ; and others in various countries, the total reaching 346,500.

The number of foreigners residing in Spain is only 37,000, including 18,000 French, 8000 Portuguese, and 5000 English, the total being barely as 2 per 1000 of the population in 1877.

PORTUGAL

Brazil is the principal destination of Portuguese emigrants, of whom more than 300,000 landed at Brazilian ports since 1855, viz. :—

1855–65	81,000
1866–75	62,000
1876–88	172,000
34 years	315,000

The Census of 1880 in the United States showed only 8000 Portuguese. A small number go to the Portuguese colonies in Africa, the average for the last ten years being under 400. The total yearly emigration is about 13,000, or 3 per 1000 of the population.

SWEDEN

Official returns for 1851 show as follows :—

Period	To United States	Other Countries	Total	Per Annum
1851–60 . .	15,000	2,000	17,000	1,700
1861–70 . .	88,000	34,000	122,000	12,200
1871–80 . .	98,000	51,000	149,000	14,900
1881–86 . .	174,000	34,000	208,000	34,700
36 years . .	375,000	121,000	496,000	13,700

It seems that in thirty years down to 1880 there were 201,000 Swedes who emigrated to the United States, and the American Census for that year showed 194,000 Swedish settlers then living. The number at present in the United States is doubtless near 300,000. There is also a current of emigration to Denmark, where the Census of 1880 showed 24,000 Swedish settlers. The number of foreigners residing in Sweden is only 18,000, of whom 5000 are Danes, 4000 Norwegians, and 3000 Germans. The total is equal to 4 per 1000 of the population.

NORWAY

Emigration has been almost exclusively to the United States. We have no returns before 1856.

		Emigrants		*Per Annum*
1856–65	. .	54,000	...	5,400
1870–74	. .	56,000	...	11,200
1876–87	. .	182,000	...	15,200

The United States Census showed 182,000 Norwegian settlers, and since that year 142,000 have gone thither (to December 1887), so that the present number cannot fall short of 240,000. There are also 3000 Norwegians settled in Denmark. The number of foreigners residing in Norway is 8000, being 4 per 1000 of the population.

DENMARK

Official returns are to the following effect :—

Period	To United States	Other Countries	Total	Per Annum
1868–70	7,300	1,400	8,700	2,900
1871–80	32,800	5,800	38,600	3,900
1881–87	51,600	2,100	53,700	7,700
20 years	91,700	9,300	101,000	5,000

The United States Census of 1880 showed 64,000 Danish residents, and, with the influx of later years, the number must now reach 90,000. Since 1870 more than 3500 Danes have gone to Australia. The current of emigration at present averages 4 per 1000 of population.

Denmark has 61,000 foreign residents, including 33,000 Germans and 24,000 Swedes, the total being equal to 3 per cent. of population.

HOLLAND

Official returns show as follows :—

Period	To United States	Other Countries	Total	Per Annum
1875–80	84,200	1,100	85,300	14,200
1881–86	113,000	1,200	114,200	19,000
12 years	197,200	2,300	199,500	16,600

The United States Census of 1880 showed 71,000 Dutch settlers; the present number cannot fall short of 170,000. The numerous Dutch colonies seem to have no attraction for emigrants. The present rate of emigration is equal to 5 per 1000 of the population.

There are in Holland 69,000 foreigners, including 42,000 Germans, 19,000 Belgians, and 2000 English ; in all equal to 15 per 1000 of the population.

BELGIUM

The currents of immigration and emigration would appear to be about equal, according to official records from 1841 to 1886. Those of the year 1846 are lost, but allowing the average in that decade, we find as follows :—

Period	Immigrants	Emigrants
1841–50	37,000	51,000
1851–60	60,000	89,000
1861–70	94,000	110,000
1871–80	150,000	119,000
1881–86	108,000	90,000
46 years	449,000	459,000

These figures represent only the arrivals and departures at ports. The actual number of emigrants in 1841–86 must have reached a million, the Census of 1885 showing the following number of Belgians abroad :—

France	482,300
Holland	18,800
United States	15,500
Germany	9,200
United Kingdom	2,600
Various	1,300

making in all 530,000 souls. In 7 years ending 1887 there were 2553 foreigners naturalised as Belgians, viz. :—

Germans	. .	933	French . . .	622
Dutch .	. .	640	Various . .	358

Notwithstanding the great influx of foreigners, the number of foreign residents at the last Census was only 143,000, including 49,000 Dutch, 51,000 French, 34,000 Germans, and 4000 English, in all 24 per thousand of the population.

UNITED STATES

The emigration to the United States before 1830 * can only be approximately estimated ; since that year minute returns have been kept.

Period	Immigrants	Per Annum
1654–1701	134,000	2,800
1702–1750	182,000	3,700
1751–1800	310,000	6,200
1801–20	178,000	8,900
1821–30	264,000	26,400
1831–40	599,000	59,900
1841–50	1,713,000	171,300
1851–60	2,590,000	259,000
1861–70	2,455,000	245,500
1871–80	3,042,000	304,200
1881–89	4,792,000	532,000
236 years	16,259,000	...

* The official returns for 1820–30 are admittedly defective and valueless.

The official returns are as follows :—

	1821-40	1841-50	1851-60	1861-70	1871-80	1881-89	69 Years
English	95,000	263,000	388,000	615,000	449,000	602,000	2,412,000
Scotch	6,000	4,000	38,000	45,000	88,000	137,000	318,000
Irish	258,000	781,000	908,000	445,000	440,000	602,000	3,434,000
United Kingdom	359,000	1,048,000	1,334,000	1,105,000	977,000	1,341,000	6,164,000
French	54,000	77,000	74,000	38,000	73,000	44,000	360,000
Germans	159,000	435,000	947,000	817,000	755,000	1,362,000	4,475,000
Scandinavians	2,000	14,000	22,000	136,000	255,000	362,000	791,000
Various	168,000	139,000	213,000	359,000	982,000	1,683,000	3,544,000
Total . . .	742,000	1,713,000	2,590,000	2,455,000	3,042,000	4,792,000	15,334,000

In the above returns the number of English is made to appear 459,000 in excess of, and that of Irish fully 600,000 less than the reality, as shown on p. 248, which is accounted for by the fact that many of the Irish were in earlier years classified as English or British. Moreover, the Census of 1880 showed that Irish settlers were more than double the number of English and Scotch collectively (1,855,000 to 917,000), whereas the above classification down to 1880 would make the ratio as 140 to 100. The total immigration of 69 years may be correctly summed up as follows :—

	Number	Ratio
English	1,963,000	12.8
Scotch	318,000	2.8
Irish	4,140,000	27.0
United Kingdom . . .	6,421,000	41.8
Germans	4,475,000	29.2
Scandinavians	791,000	5.2
French	360,000	2.4
Various	3,287,000	21.4
Total . .	15,334,000	100.0

During 31 years the record of ages was kept; and if we suppose the ratios to apply to the whole 69 years, the ages of immigrants showed as follows :—

	Number	Ratio
Under 10	2,300,000	15.0
10–20	3,220,000	21.0
20–30	5,670,000	37.0
30–40	2,450,000	16.0
Over 40	1,694,000	11.0
Total . .	15,334,000	100.0

The returns of the Census of 1880, and the estimates resulting from the immigration since then as to the actual number of foreigners, are :—

	Census, 1880	Arrivals, 1881–88	Estimated Residents, 1888
Germans . . .	1,967,000	1,104,000	2,450,000
Irish	1,855,000	536,000	1,920,000
British . . .	917,000	658,000	1,260,000
Scandinavians .	376,000	412,000	630,000
Italians . .	44,000	201,000	190,000
French . . .	107,000	20,000	100,000
Dutch . . .	58,000	151,000	170,000
Swiss . . .	89,000	68,000	130,000
Austrians & Hungarians	135,000	266,000	320,000
Russians and Poles .	85,000	160,000	190,000
Various . . .	693,000	744,000	1,150,000
Total . .	6,326,000	4,320,000	8,510,000

In the last fifty years the United States received nearly 15,000,000 settlers, and the Census of 1880 showed that every 100 settlers had the following number of children living :—German, 148 ; Irish, 144 ; British, 122 ; general average, 124. The foreign population in December 1888 stood approximately thus :—

	Immigrants	Children	Total
German . . .	2,450,000	3,650,000	6,100,000
Irish	1,920,000	2,760,000	4,680,000
British . . .	1,260,000	1,550,000	2,810,000
Various . . .	2,880,000	2,670,000	5,550,000
Total foreign .	8,510,000	10,630,000	19,140,000

The numbers and proportion of resident foreigners in the whole population have been as follows :—

Year	Population	Foreign Residents	Percentage
1820 . . .	9,634,000	177,000	1.8
1840 . . .	17,069,000	859,000	5.0
1850 . . .	23,192,000	2,241,000	9.7
1860 . . .	31,443,000	4,136,000	13.1
1870 . . .	38,558,000	5,566,000	14.5
1880 . . .	50,410,000	6,326,000	12.5
1888 . . .	60,000,000	8,510,000	14.2

In the above table "foreign residents" of course include naturalised American citizens. Foreigners and their children, as shown in a previous table, constitute almost one-third of the population.

CANADA

The net increase of population by settlers may be estimated on comparing the several Census returns ; and allowing for natural increase, the figures result approximately thus :—

Year	Population	Natural Increase of Decade	Net Immigration of Decade	Net Immigration per Annum
1831	1,158,000	...	...	...
1841	1,690,000	230,000	302,000	30,200
1851	2,482,000	305,000	487,000	48,700
1861	3,030,000	370,000	178,000	17,800
1871	3,833,000	420,000	383,000	38,300
1881	4,504,000	460,000	211,000	21,100
1887	5,019,000	310,000	205,000	34,200
56 years	...	2,095,000	1,766,000	31,500

The number of British and Irish emigrants who went to Canada from 1815 to 1888 amounted (see p. 248) to 1,577,000, or 90 per cent. of the above total.

Only a portion of the European emigrants who landed in the colony settled there, the rest proceeding to the

United States. An official statement published in 1877 showed as follows :—

Period	Arrived	Proceeded to United States	Remained
1851–71	1,051,000	595,000	456,000
1872–76	351,000	179,000	172,000
26 years	1,402,000	774,000	628,000

AUSTRALIA

The current of emigration since 1820 has been approximately thus :—

Period	Number	Per Annum
1821–40	40,000	2,000
1841–50	90,000	9,000
1851–60	710,000	71,000
1861–70	320,000	32,000
1871–80	340,000	34,000
1881–88	350,000	44,000
68 years	1,850,000	27,000

We have already seen (page 248) that 1,505,000 British subjects emigrated to Australia, or 81 per cent. of the above total. In 1871 there were 34,000 German residents.

The Australian colonies have expended 8½ millions in promoting immigration, viz. :—

	Expended	Immigrants	Per Head
	£		£
New Zealand . . .	1,950,000	101,000	19
Victoria	2,880,000	167,000	17
Queensland, &c., &c. .	3,600,000	202,000	18
Total . .	8,430,000	470,000	18

Assisted passages are still provided by some of the colonies.

CAPE COLONY

The white population in 27 years, ending 1875, rose from 87,000 to 237,000, and as the natural increase was 24 per cent. per decade, we find that the total immigration must have been 70,000, say 2600 per annum. This includes 15,000 Government immigrants introduced from 1847 to 1872. The discovery of diamonds in 1867, and construction of railways, have stimulated European immigration, which now may be estimated at 5000 yearly. There are also more than 10,000 settlers at Natal.

BRAZIL

The number of European settlers has been as follows :—

		Per Annum
1855–64 . . .	120,000	12,000
1866–74 . . .	116,000	11,600
1875–84 . . .	228,000	22,800
1885–88 . . .	266,000	66,000
Total .	730,000	21,500

In the year 1825 the Emperor Pedro I. founded the first German colony, 909 souls, at San Leopoldo, Rio Grande do Sul. In 1854 the little settlement counted 11,172 Germans, including 3680 born in the country. Each family had received on arrival a free land-grant of 130 acres. In 1866 the colonists numbered 25,000, including children, and in 1871 the product of the farms was valued officially at one million sterling, or nearly £200 per family. Meantime the influx of more Germans, and the increasing number of the San Leopoldo com-

munity, led to the establishment of 42 other German settlements in Rio Grande, for the most part between the years 1849 and 1860 : the whole in 1871 counted 70,000 Germans, one half born in the country, their farms being valued at six millions sterling. German colonies were introduced into the neighbouring province of Santa Catharina in 1849, and about the same time into San Paulo ; in later years into Minas Geraes, Paraná, and other provinces. In 1871 there were the following colonies :—

Rio Grande do Sul	43
San Paulo	12
Other provinces	21
Total . . .	76

The agricultural settlements had about 90,000 Europeans, more than half being Germans, the rest Swiss, Italians, &c. Since 1880 a great influx of Italians has taken place in San Paulo, and these settlers have begun planting vines on a large scale : in 1888 no fewer than 92,000 immigrants settled in that province, the total immigration that year reaching 131,000. The Government devotes £550,000 per annum to free passages. In 1872 the number of Europeans in Brazil was 243,000, at present it is probably about 460,000.

ARGENTINA

The official returns are as follows :—

		Per Annum
1861–70 . . .	185,000	18,500
1871–80 . . .	453,000	45,300
1881–88 . . .	766,000	96,000
28 years . . .	1,404,000	50,000

The number of immigrants in 1888 was 181,000, which shows that this country comes next after the United States as a field for European emigration. The returns from 1871 to 1888 show nationalities thus :—

Italians . 550,000	French . 100,000	Germans . 15,000	
Spaniards 122,000	British . 20,000	Unascertained } 412,000	

The bulk of those unascertained were Italians, who formed 65 per cent. of the whole number. Before the year 1860 the average immigration was 5000 yearly, one third being Italians.

Agricultural colonies were begun in Santa Fè in 1856, and in 1884 there were 78 of these settlements, counting in all 66,000 inhabitants, who cultivated 940,000 acres, and possessed properties to the value of £8,400,000. The first settlers were Swiss, but at present Italians, Swiss, Germans, and French are almost equal in numbers. The growth of the Santa Fè colonies is shown thus :—

Year	Acres	Population
1871	140,000	13,600
1879	404,000	40,700
1884	940,000	66,000

In 1884 there were also ten colonies in Entre Rios ; in 1856 they had 9900 inhabitants, mostly Italians and Germans, who cultivated 170,000 acres. Two colonies in Cordoba had 3000 settlers. The Welsh settlement in Patagonia had 1300 souls, whose farms were valued at £122,000, having 17,000 acres under wheat, the crop averaging 200,000 bushels. It was founded in 1865.

The total area under crops in 1887 held by agricultural colonies was estimated at 2,200,000 acres, cultivated by 140,000 settlers, and producing 20 million bushels of grain. These colonies account for only 10 per cent. of the immigration since 1860, most of the Italians having preferred to settle about Buenos Ayres in every variety of calling. The official returns of money in bank and

real estate, in the city of Buenos Ayres, in 1883, were as follows :—

	Number of Depositors	Deposits, in £ Sterling	Real Estate, £ Sterling
Italians	10,090	2,800,000	6,600,000
Argentines . .	7,056	2,860,000	22,100,000
Spaniards . . .	3,008	1,100,000	1,800,000
French	2,022	620,000	2,200,000
English	801	450,000	1,200,000
Germans . . .	451	250,000	600,000
Various	1,291	1,200,000	3,800,000
Total . .	24,719	9,280,000	38,300,000

The above returns are only for the city, and have no reference to the thriving Irish and Scotch communities in the province of Buenos Ayres.

The Scotch made their first settlement at Monte Grande in 1826, the Irish at various places in 1840. Their numbers and possessions in 1884 stood thus :—

	Population	Area of Lands, Square Miles	Number of Sheep	Value of Property, £ Sterling
Irish . . .	22,000	4,900	9,200,000	15,200,000
Scotch . .	3,600	2,500	3,000,000	6,100,000
Total .	25,600	7,400	12,200,000	21,300,000

According to the census of 1869 there were 212,000 European residents, since which year 1,260,000 emigrants have arrived, of whom 29 per cent. returned. Allowing for deaths the number of foreign population would be as follows :—

	Number in 1869	Arrivals, 1870–88	Present Number	Population Including Children
Italians . . .	71,000	820,000	530,000	1,320,000
Spaniards . .	34,000	180,000	140,000	310,000
French . . .	32,000	150,000	120,000	250,000
British and Irish .	11,000	30,000	30,000	70,000
German and Swiss .	11,000	30,000	30,000	70,000
Various . .	53,000	50,000	70,000	150,000
Total .	212,000	1,260,000	920,000	2,170,000

The population of the Republic in January 1888 was estimated at 3,930,000, from which it appears that foreigners form 23 per cent., and with their children 55 per cent. of the total. Buenos Ayres is the chief centre of European settlers, 72 per cent. of the children born in that city being of foreign parents.

URUGUAY

Official returns as to immigrants landed at Monte Video are :—

Period	Number	Per Annum
1835–52 . . .	36,600	2,000
1853–62 . . .	28,000	2,800
1863–72 . . .	143,000	14,300
1873–87 . . .	156,000	10,400
53 years . . .	363,600	6,800

It is, however, beyond doubt that one-half proceeded to Buenos Ayres, the number of settlers remaining in the country averaging about 6000 yearly in the last twenty-five years. Taking the ratio of nationality as entered in the records, the actual immigrants since 1863 may be set down as follows :—

Italians .	.	.	.	.	81,000
Spaniards	.	.	.	.	33,000
French .	.	.	.	.	8,000
British .	.	.	.	.	5,000
Various	.	.	.	.	23,000
Total	.	.	.		150,000

In 1884 there were eight agricultural colonies, Swiss and Italian, with 6200 settlers, who cultivated 110,000 acres, and raised 900,000 bushels of grain, valued at £140,000 sterling. The farms of these settlers were assessed at £780,000 sterling. An official report in 1884 showed the number of European settlers in the Republic, and the amount of property paying tax held by those of each nation.

	Number	Wealth, £ Sterling	£ per Head
Spaniards . . .	44,000	12,500,000	280
Italians . . .	39,000	11,200,000	286
Brazilians . . .	22,000	14,700,000	660
French	16,000	5,700,000	350
British	3,000	3,100,000	1,030
Various . . .	42,000	4,800,000	115
Foreign settlers .	166,000	52,000,000	315

Foreigners were 27 per cent. of the population, and held 58 per cent. of the assessed wealth of the Republic.

ALGERIA

Complete statistics of immigration from 1883 to 1886 will be found under the title *Colonies*, page 126.

ENGINEERING

Some of the most important works carried out in ancient or modern times, as well as those projected, will be found in the following list :—

Aqueducts.—Those of Rome under the Cæsars supplied 320 million gallons water daily, and were 249 miles long in the aggregate. The Incas of Peru had one 360 miles long.

Blasting.—At Dover, in 1873, the South Eastern Railway Company removed at one blast 800,000 tons of the granite cliff, using eight tons of powder in three charges. At Loch Fyne, near Glasgow, 13th December 1888, Mr. Gardiner's electric battery displaced at a single blast 75,000 tons of granite.

Boring.—The greatest depth yet reached is 5200 feet, at Schladerbach, near Halle. The cost of boring with diamond-drill in the Barrow ironstone district, England, varies from 32 to 44 pence per foot.

Bridges.—That of Forth, Scotland, finished in 1889, employed 48,000 tons of steel, and 125,000 cubic yards of masonry, has three spans of 1700 feet each, total length 5330 feet. It rests on four cylindrical pillars of masonry, 70 feet diameter, built on rocks 90 feet under water : it can safely carry a weight of 84,000 tons ; the cost was £2,000,000. In 1867 De Gamond proposed a metal tubular bridge, 30 by 24 feet, from Calais to Dover, to cost £7,200,000, and be completed in seven years. This scheme was revived in 1889, at a proposed cost of 34½ millions sterling, the bridge to be 200 feet above water, and consist of 74 spans of 550 yards each, resting on masonry pillars, averaging 200 feet down into the sea, the superstructure to employ one million tons of steel, the whole to be completed in ten years ; masonry, £15,200,000 ; superstructure, £19,200,000. See *Bridges*.

Canal.—That of China, 2100 miles long, was completed in 1350, after 600 years of labour. That of Suez, opened in 1869 after thirteen years' work, is 92 miles long, and cost 17 millions sterling.

Earthworks

	Cost, Cubic Yd.		Cost, Cubic Yd.
England . . .	21 pence	Panama Canal .	15 pence
Suez Canal . . .	12 ,,	Cyprus	6 ,,

The work of the Thames Embankment, completed after eight years, in 1869, at a cost of £1,710,000, consisted as follows :—

	Cubic Yards		Cubic Yards
Brickwork	80,000	Granite	650,000
Concrete	140,000	Earthwork . . .	970,000

The Hercules Ditcher, Michigan, removes 700 tons of clay per hour.

Harbours.—That of Cherbourg, completed by Napoleon III. in 1857, was 74 years in construction, and cost £3,500,000. That of Holyhead, finished in 1880, has a pier consisting of seven million tons of granite, length 7860 feet, width varying from 250 to 400 feet. Plymouth breakwater, begun in 1812, finished in 1841, has 3,800,000 tons of stone, length 5300 feet, cost £1,550,000.

Pumps.—Those employed at Zegedin, Hungary, in 1879, pumped out 500,000 tons or 110,000,000 gallons water daily. Those of the Severn Tunnel in 1880 pumped out each 150,000 gallons an hour. The Haarlem Pumps lifted 109 tons of water 10 feet at each stroke; they drained Lake Haarlem, pumping out 1100 million tons water in eleven years, say 400,000 tons daily.

Pyramid.—That of Cheops, near Cairo, contains four million tons of stone, and cost 40 millions sterling. It would now cost only 4 millions.

Removal.—The Pelham Hotel, Boston, stone-built, 96 feet high, weight 10,000 tons, was moved by engineers, to widen the street, a distance of 14 feet in 70 hours.

Tower.—That of Babel, according to Herodotus, was 610 feet high. The Eiffel Tower, at Paris, built in six months, 1889, is 990 feet high, of iron.

Tunnel.—The longest yet made is the St. Gothard, 16,400 yards, begun in 1873, completed in 1881, at a cost of £152 per yard.

Wall.—That of China contains 6350 million cubic feet of material, or 160 times as much as the Great Pyramid of Egypt.

EXHIBITIONS

Date	Place	Area, Acres	Visitors	Days Open	Receipts	Exhibitors
1851	London . .	21	6,200,000	141	424,000	17,000
1855	Paris . . .	24	4,500,000	200	128,000	24,000
1862	London . .	23	6,200,000	171	408,000	29,000
1867	Paris . . .	37	9,300,000	217	420,000	50,000
1873	Vienna . .	48	7,300,000	186	206,000	43,000
1876	Philadelphia	55	10,200,000	...	800,000	...
1878	Paris . . .	60	16,100,000	194	974,000	60,000
1889	Paris . . .	...	25,000,000	180	1,980,000	55,000

The exhibitors and winners of prizes at the London Exhibition of 1851 were as follows :—

	Exhibitors	Prizes
British	9,970	2,089
French	1,750	1,050
German	1 450	482
Austrian	750	236
United States	600	152
Various	2,880	1,177
Total . .	17,400	5,186

At the Paris Exhibition of 1889 the following prizes were given :—

Grand prizes	890
Gold medals	5,599
Silver medals	11,104
Bronze medals	10,980
Total . . .	28,573

The London Exhibition of 1851 left a net profit of £104,000; that of Paris in 1878, a loss of £1,270,000; and that of Paris in 1889, a net profit of £320,000.

At the last-mentioned the police estimated 5 million French and 1,500,000 foreign visitors, the latter including 380,000 English, 225,000 Belgians, 160,000 Germans, 56,000 Spaniards, 52,000 Swiss, 38,000 Italians, 32,000 Austrians, 7000 Russians, 90,000 North Americans, and 25,000 South Americans.

The balance-sheet of the Exhibition of 1889 showed thus :—

	£
Tickets	980,000
Paris subsidy , . . .	320,000
State subsidy	680,000
Receipts	1,980,000
Expenses	1,660,000
Surplus	320,000

The largest number of visitors in one day was 400,000.

F.

FACTORIES

Some countries have precise statistics only touching textile factories, others include every industrial establishment in which more than a dozen hands are employed. The following table shows approximately the number of factory operatives of various nations :—

United Kingdom	1,703,000	Spain	200,000
France	1,783,000	Switzerland . .	300,000
Germany . . .	1,527,000	Belgium . . .	400,000
Russia	955,000	Sweden	53,000
Austria	490,000	United States . .	2,739,000
Italy	382,000	Canada	255,000

The textile factories of the United Kingdom show as follows :—

Year	Number of Factories	Spindles	Power Looms	Steam, Horse-Power	Operatives
1835	3,160	...	117,000	...	355,000
1840	4,213	...	...	69,000	424,000
1850	4,601	31,000,000	302,000	108,000	596,000
1860	6,378	36,000,000	499,000	375,000	776,000
1870	6,258	42,000,000	606,000	473,000	907,000
1880	7,105	47,000,000	725,000	570,000	976,000
1885	7,465	47,800,000	774,000	...	1,034,000

The following table shows British textile factories at three dates :—

Factories	Hands			Horse-Power			Power Looms, Number		
	1838	1856	1885	1838	1856	1885	1838	1856	1885
Cotton . . .	259,000	379,000	504,000	60,000	97,000	356,000	109,000	299,000	560,000
Woollen . .	86,000	167,000	282,000	28,000	41,000	122,000	5,000	53,000	140,000
Linen, &c. . .	44,000	80,000	164,000	11,000	18,000	73,000	2,000	9,000	60,000
Silk . . .	34,000	56,000	43,000	3,000	5,000	10,000	...	8,000	12,000
Total .	423,000	682,000	993,000	102,000	161,000	561,000	116,000	369,000	772,000

Besides the foregoing there are factories of hosiery, lace, &c.

The hands employed in textile factories of the United Kingdom were made up thus :—

	1870			1885		
	Males	Females	Total	Males	Females	Total
England	304,000	414,000	718,000	338,000	476,000	814,000
Scotland	34,000	93,000	127,000	45,000	107,000	152,000
Ireland	21,000	41,000	62,000	22,000	46,000	68,000
Total	359,000	548,000	907,000	405,000	629,000	1,034,000

Factory legislation as to the minimum age for children being employed, and their hours of labour, is shown thus :—

	Minimum Age	Maximum of Hours Daily for					
		Children Under 11	Under 12	Under 13	Under 14	Under 15	Under 16
France . . .	10	6	6	12	12	12	12
Germany . .	12	...	...	6	6	10	10
Russia . . .	10	6	6	12	12	12	12
Austria . . .	10	10	10	12	12	12	12
Italy . . .	9	8	10	10	10	10	...
Spain . . .	10	5	5	5	8	8	8
Switzerland . .	10	6	6	12	12	12	12
Denmark . .	10	4	4	4	4	12	12

The minimum in Belgium is 10 years, in Holland 12. In all cases the children are to have Sunday free.

At the Berlin Congress in 1890 it was recommended that children should not be admitted to work in any industry under 12 years of age, and then only for 6 hours per day till they were 14 ; that young persons from 14 to 16 years of age should not work more than 10 hours per day, and that women should in no case work more than 11 hours per day. In India, however, children of 7 years of age are employed in the cotton-mills for 9 hours a day.

The average of working hours and of wages weekly in 1840 and 1880 were as follows :—

	Hours Weekly		Wages, Shillings Weekly		Pence per Hour	
	1840	1880	1840	1880	1840	1880
Great Britain .	69	52	12	24	2.1	5.5
France . . .	78	60	6	19	0.9	3.8
Germany . . .	83	60	4	16	0.6	3.2
United States .	78	60	15	28	2.3	5.6
Belgium . . .	...	62	...	20	...	3.9
Italy	...	72	...	15	...	2.5

The working hours average 72 per week in Russia, 64 in Holland, 66 in Switzerland and Austria. Wages average 16s. in Spain.

The cost of erecting and equipping a factory was estimated by M'Culloch at £100 per operative. Port Dundas factory, near Glasgow, has a chimney 454 feet high, supposed to be the highest in the world.

FAIRS

In that of Leipzig the annual average of sales is four millions sterling, comprising 20,000 tons of merchandise, of which 8000 tons are books.

The fair of Nijni-Novgorod is the greatest in the world, the returns showing :—

Year	Goods Offered	Goods Sold
	£	£
1841	8,000,000	7,000,000
1857	13,000,000	12,000,000
1876	30,000,000	28,000,000

This fair is attended by 150,000 dealers from all parts of the world, and the goods sold in 1876 were :—

	£
Cottons, linens, &c.	8,000,000
Furs, leather, &c.	7,000,000
Ural metals	7,000,000
Flour, fish, brandy	3,000,000
Tea and luxuries	3,000,000
Total . . .	28,000,000

FAMINES

Walford mentions 160 since the eleventh century, viz. :—

England . . 57 | Scotland . . 12 | Germany . . 11
Ireland . . 34 | France . . . 10 | Italy, &c., . 36

The worst in modern times have been :—

In					Date	Victims
France					1770	48,000
Ireland					1816–17	737,000
Ireland					1846–47	1,009,000
India					1866	1,450,000
India					1877	500,000
China					1878	9,500,000

The number of victims in Ireland in 1816–17 was stated by Murchison and Kennedy as above.

The Commissioners' report for 1846–47 reduced the number of victims to 600,000 by supposing "that 500,000 Irish went into Great Britain, and that the ordinary death-rate of Irish population is 22 per thousand yearly." Neither supposition was correct, the Census of 1851 showing that only 314,000 Irish had removed to England and Scotland, and the Registrar-General's report for 16 years ending 1880 showing that the normal death-rate of Ireland is 17 per 1000. In 1851 the number of persons missing in Ireland was 3,157,000, accounted for in this manner :—

					Official Report	Real Figures
Emigrated	.	.	.	.	1,079,000	1,079,000
Went to Great Britain	.	.		.	500,000	314,000
Natural deaths	.	.	.	.	978,000	755,000
Died of famine	.	.	.	.	600,000	1,009,000
Accounted for	.	.	.	.	3,157,000	3,157,000

Deaths from hunger and destitution in the United Kingdom average more than 500 per annum, and are most frequent in London. In 1879 the deaths recorded from this cause were :—

					Number	Per 1000 Deaths
London	.	.	.	.	101	1.2
England	.	.	.	.	312	0.6
Ireland	.	.	.	.	3,789	37.6
France	.	.	.	.	260	0.3

In England there were 60 male to 40 female victims ; in France 85 to 15. In London the real number of victims was much greater, many of the suicides resulting from hunger. In 1880 Mr. Forster said the Irish death-rate was 10 per cent. over the average of five years. In 1879–80 there were 17,200 extra deaths, apparently caused by destitution, in Ireland.

FASTING

1684. Four men taken alive out of a mine in England, after 24 days without food.

1880. Dr. Tanner, New York, lived on water 40 days, losing 36 lbs. weight.

On December 14, 1810, a pig was buried alive by fall of a cliff at Dover, and on May 23, 1811, it was dug out alive, after 160 days.

In 1870, during the siege of Metz, a dog that was accidentally locked in a room passed 39 days without food and recovered.

FINANCE

The revenue of the principal countries was approximately as follows :—

				1680	1750	1810	1850	1889
				£	£	£	£	£
United Kingdom	.	.	.	2,120,000	9,200,000	55,800,000	58,200,000	88,500,000
France	.	.	.	4,800,000	14,200,000	40,000,000	51,000,000	121,800,000
Germany	.	.	.	2,000,000	7,000,000	11,500,000	23,800,000	154,700,000
Russia	.	.	.	400,000	1,600,000	11,000,000	39,000,000	88,800,000
Austria	.	.	.	...	4,000,000	10,400,000	20,000,000	74,800,000
Italy	.	.	.	1,500,000	4,600,000	12,000,000	72,000,000
Spain	.	.	.	1,930,000	3,320,000	6,000,000	11,500,000	35,400,000
Portugal	.	.	.	...	...	1,200,000	3,200,000	8,400,000
Sweden	.	.	.	...	...	1,000,000	1,500,000	4,800,000
Norway	.	.	.	...	...	...	800,000	2,400,000
Denmark	.	.	.	...	...	1,100,000	1,500,000	3,000,000
Holland	.	.	.	...	2,200,000	4,800,000	5,800,000	10,100,000
Belgium	.	.	.	...	...	...	4,700,000	12,900,000
Switzerland	.	.	.	...	...	...	1,000,000	2,900,000
Greece	.	.	.	...	...	...	1,000,000	3,100,000
Turkey, &c.	.	.	.	...	...	3,000,000	9,000,000	23,200,000
Europe	.	.	.	15,000,000	35,000,000	150,400,000	244,000,000	706,800,000
United States	.	.	.	...	...	1,900,000	9,200,000	80,600,000
Australia	.	.	.	...	...	...	900,000	27,600,000
Canada	.	.	.	...	...	...	1,100,000	7,800,000
India	.	.	.	...	...	15,600,000	27,600,000	69,100,000
South Africa	.	.	.	...	...	...	500,000	4,000,000
Argentina	.	.	.	...	...	200,000	900,000	5,400,000
Brazil	.	.	.	...	...	1,800,000	4,000,000	14,100,000
Chile	.	.	.	...	...	...	1,000,000	5,000,000
Peru	.	.	.	...	...	...	2,000,000	1,500,000
Venezuela	.	.	.	...	...	...	500,000	1,000,000
Colombia	.	.	.	...	...	...	500,000	1,000,000
Mexico	.	.	.	...	...	...	3,000,000	5,400,000
Egypt	.	.	.	...	...	...	4,000,000	9,700,000
Persia	.	.	.	...	...	...	1,500,000	1,700,000
Japan	.	.	.	...	...	...	5,000,000	13,100,000
China	.	.	.	...	...	...	18,000,000	26,000,000
Cuba	.	.	.	...	...	...	1,500,000	2,500,000
The world	.		18,000,000	40,000,000	180,000,000	325,200,000	982,300,000

The revenue of nations has trebled since 1850, multiplied 5½ times since 1810, and 55 times since 1680. The various blanks in the above table from 1680 to 1810 show that the revenue cannot be stated for those countries ; approximate totals are nevertheless given, for comparison.

R

The revenue of the various nations since 1820 is shown approximately in million £ annual averages, as follows:—

	1821-40	1841-50	1851-60	1861-70	1871-80	1881-88
U. Kingdom .	64	61	68	71	77	88
France . . .	40	50	60	78	105	140
Germany . .	16	21	34	40	73	110
Russia . . .	22	33	38	46	60	74
Austria . . .	13	18	28	44	61	68
Italy	9	11	20	43	53	63
Spain . . .	8	10	12	20	30	33
Portugal . . .	2	3	4	5	6	8
Sweden and Norway .	2	2	3	4	7	7
Denmark . .	1	2	2	2	3	3
Holland . . .	3	5	7	8	9	10
Belgium . . .	3	4	5	7	9	13
Turkey . . .	5	7	9	11	14	16
Other countries	1	2	3	5	8	11
Europe . . .	189	229	293	384	515	644
United States .	5	6	12	37	62	76
Egypt. . . .	3	4	5	7	8	9
India	19	24	33	46	56	73
British Colonies	1	2	7	15	23	36
Other countries	20	24	33	42	60	72
The world . .	237	289	383	531	724	910

If we take the year 1840 for point of departure, we find the expenditure per inhabitant in the principal countries has risen as follows:—

	1840	1850	1860	1870	1881	1881-88
U. Kingdom .	100	100	125	113	118	120
France. . .	100	103	135	147	200	247
Germany . .	100	113	120	167	267	360
Russia . . .	100	130	150	190	200	180
Austria . .	100	130	140	170	200	215
Italy . . .	100	155	190	170	200	240
Spain . . .	100	121	150	242	242	230
United States	100	117	133	500	351	333
Australia . .	100	90	375	360	424	570
Canada . .	100	114	128	142	192	285

The average annual revenues from different sources in the decade 1871-80 were as follows:—

	Customs	Property-Tax	Various	Total
	£	£	£	£
U. Kingdom	20,100,000	6,600,000	50,600,000	77,300,000
France . .	10,300,000	8,700,000	85,500,000	104,500,000
Germany . .	8,600,000	10,500,000	53,500,000	72,600,000
Russia . .	8,500,000	10,300,000	41,500,000	60,300,000
Austria . .	2,600,000	9,400,000	44,000,000	56,000,000
Italy . . .	5,000,000	13,000,000	35,400,000	53,400,000
Spain . .	4,400,000	9,600,000	15,800,000	29,800,000
Portugal . .	1,800,000	800,000	3,200,000	5,800,000
Holland. .	400,000	1,800,000	6,500,000	8,700,000
Belgium . .	800,000	1,500,000	7,000,000	9,300,000
Denmark .	1,000,000	500,000	1,200,000	2,700,000
Sweden and Norway	2,400,000	500,000	4,000,000	6,900,000
Europe . .	65,900,000	73,200,000	348,200,000	487,300,000
U. States .	26,000,000	...	36,200,000	62,200,000
Canada . .	2,700,000	...	2,200,000	4,900,000
Australia .	4,100,000	...	10,100,000	14,200,000
Brazil . .	6,700,000	400,000	2,200,000	9,300,000
Egypt . .	800,000	5,000,000	2,300,000	8,100,000
India. . .	2,200,000	21,100,000	31,800,000	55,100,000
The world .	108,400,000	99,700,000	430,000,000	641,100,000

The expenditure of the principal nations in 1887 appeared under the principal heads as follows:—

	Govern-ment	Debt	Army and Navy	Total
	£	£	£	£
U.Kingdom	30,200,000	27,900,000	31,900,000	90,000,000
France . .	41,000,000	52,800,000	31,400,000	125,200,000
Germany .	82,300,000	16,700,000	31,000,000	130,000,000
Russia . .	30,500,000	28,100,000	25,000,000	83,600,000
Austria . .	44,200,000	16,200,000	13,600,000	74,000,000
Italy . .	34,700,000	20,700,000	14,200,000	69,600,000
Spain . .	15,800,000	10,900,000	7,300,000	34,000,000
Portugal .	4,000,000	3,600,000	1,400,000	9,000,000
Sweden and Norway	5,100,000	700,000	1,400,000	7,200,000
Denmark .	1,300,000	500,000	1,200,000	3,000,000
Holland .	5,500,000	3,100,000	2,800,000	11,400,000
Belgium .	7,900,000	3,900,000	2,000,000	13,800,000
Switzerland	1,600,000	...	800,000	2,400,000
Greece . .	1,700,000	1,500,000	600,000	3,800,000
Roumania .	1,200,000	2,700,000	1,300,000	5,200,000
Servia . .	700,000	500,000	600,000	1,800,000
Europe .	307,700,000	189,800,000	166,500,000	664,000,000
U. States .	34,700,000	9,900,000	11,200,000	55,800,000
Total .	342,400,000	199,700,000	177,700,000	719,800,000

The above does not include Turkey, whose expenditure is about 16 millions sterling.

National expenditure at various dates since 1830 was as follows:—

	Millions Sterling						
	1830	1840	1850	1860	1870	1881	1881-88
United Kingdom . .	55	52	55	73	70	83	88
France . . .	41	57	60	83	90	121	160
Germany . .	16	22	28	32	51	90	127
Russia . . .	23	30	42	56	69	80	95
Austria . . .	18	28	39	45	59	75	82
Italy . . .	12	19	31	37	41	56	72
Spain . . .	9	11	14	21	33	33	36
Portugal . .	2	3	4	4	5	8	9
Holland . .	3	5	7	7	8	10	11
Belgium . .	3	5	6	6	7	11	14
Denmark . .	2	2	2	2	3	2	3
Sweden and Norway	2	2	2	3	5	7	8
Greece . . .	1	1	1	1	2	4	3
Roumania . .	...	...	...	...	...	5	5
Turkey . . .	4	6	8	13	21	13	16
Europe . . .	191	243	299	383	464	598	729
United States .	3	5	7	12	58	54	55
Mexico . . .	3	3	4	6	5	4	5
S. American Republics .	2	2	3	4	8	11	15
Brazil . . .	2	3	5	6	8	11	15
Canada . . .	1	1	2	3	4	6	10
Australia . .	1	1	1	8	12	20	33
Cape Colony . .	1	1	1	2	5	8	6
Egypt . . .	2	2	3	5	14	8	9
India . . .	22	25	28	52	55	76	77
Java . . .	2	4	5	6	8	11	11
Japan . . .	...	...	...	...	...	11	11
The world . .	230	290	358	486	638	815	976

In the above table the expenditure for Germany includes the budgets of Prussia, Bavaria, Saxony, and the minor States. It does not include State expenditure in the United States, nor local taxes in any country.

The following table shows approximately the chief sources of revenue in 1890 (or latest year), how much is raised by taxation, how much for public services :—

	Direct Taxes	Customs	Other Taxes	Public Services	Total	Shillings per Inhabitant
			Amount, £			
United Kingdom . .	15,300,000	20,000,000	38,200,000	15,000,000	88,500,000	46
France	17,900,000	15,000,000	69,100,000	19,800,000	121,800,000	64
Germany	12,500,000	13,500,000	38,900,000	89,800,000	154,700,000	65
Russia	8,200,000	12,100,000	40,900,000	27,600,000	88,800,000	20
Austria	11,700,000	3,900,000	34,500,000	24,700,000	74,800,000	39
Italy	16,200,000	10,600,000	27,000,000	18,200,000	72,000,000	48
Spain	12,400,000	6,900,000	12,600,000	3,500,000	35,400,000	38
Portugal	1,000,000	3,100,000	2,500,000	1,800,000	8,400,000	38
Sweden	600,000	2,100,000	1,000,000	1,100,000	4,800,000	20
Norway	...	1,100,000	400,000	900,000	2,400,000	24
Denmark	500,000	1,400,000	600,000	500,000	3,000,000	30
Holland	2,300,000	400,000	5,600,000	1,800,000	10,100,000	44
Belgium	2,100,000	1,100,000	3,600,000	6,100,000	12,900,000	43
Switzerland . . .	...	1,200,000	600,000	1,100,000	2,900,000	20
Greece	900,000	700,000	800,000	700,000	3,100,000	31
Europe	101,600,000	93,100,000	276,300,000	212,600,000	683,600,000	45
United States . .	...	46,600,000	27,200,000	6,800,000	80,600,000	26
Canada	...	4,500,000	1,300,000	2,000,000	7,800,000	31
Australia	...	8,200,000	2,500,000	16,900,000	27,600,000	150
India	19,500,000	1,200,000	26,800,000	21,600,000	69,100,000	7
Argentina . . .	800,000	3,900,000	400,000	300,000	5,400,000	30
Total . .	121,900,000	157,500,000	334,500,000	260,200,000	874,100,000	...

Expenditure compared with population at the above date thus :—

	1830	1840	1850	1860	1870	1881	1881-88
				Shillings per Inhabitant			
United Kingdom . .	46	40	40	50	45	47	48
France . . .	25	34	35	46	50	68	84
Germany . . .	12	15	17	18	25	40	54
Russia . . .	9	10	13	15	19	20	18
Austria . . .	15	20	26	28	34	40	43
Italy . . .	15	20	31	38	34	40	48
Spain . . .	16	18	20	27	40	40	42
Portugal . . .	11	17	20	20	24	36	40
Holland . . .	24	34	46	44	46	50	52
Belgium . . .	18	25	27	25	28	42	50
Denmark . . .	36	35	33	31	34	24	30
Sweden and Norway .	10	10	10	12	17	22	25
Greece . . .	20	20	20	16	34	45	40
Roumania . . .	...	...	...	...	...	19	20
Turkey . . .	7	10	13	18	27	60	70
Europe . . .	16	20	22	28	31	39	45
United States . .	4	6	7	8	30	21	20
Brazil . . .	7	9	12	15	18	23	26
Canada . . .	10	14	16	18	20	27	40
Australia . . .	40	33	30	125	120	141	188
Cape Colony . . .	...	30	28	49	27	90	100
India . . .	5	5	5	7	7	8	8
Java . . .	7	10	10	10	10	12	12
Egypt . . .	12	12	27	40	56	30	33
Argentine Republic .	10	10	10	15	34	40	44
Chili	7	7	15	13	21	35	38
The world . . .	11	13	14	18	22	25	28

It appears that since 1830 the annual public expenditure in Europe per head of population has trebled, but that in the United Kingdom there has been no sensible increase. The ratio per inhabitant has, meantime, risen more in the United States, Canada, Australia, and Argentina than in Europe.

The revenue and expenditure of the principal countries since 1870 have been as follows :—

	1871-88		
	Amount in Million £		
	Revenue	Expenditure	Surplus Expenditure
United Kingdom	1,474	1,467	...
France . .	2,170	2,935	765
Germany . .	1,610	1,880	270
Russia . .	1,192	1,606	414
Austria . .	1,154	1,342	188
Italy . .	1,034	1,161	127
Spain . .	564	784	220
United States	1,228	964	...
Australia . .	333	464	131
Canada . .	109	139	30
India . .	1,152	1,230	78
Other countries .	2,500	2,792	292
Total . .	14,520	16,764	2,244

The revenue and expenditure of Europe were approximately as follows :—

	Millions Sterling £		
	Revenue	Expenditure	Surplus Expenditure
1821-40 . .	3,780	3,840	60
1841-50 . .	2,290	2,320	30
1851-60 . .	2,930	3,400	470
1861-70 . .	3,840	4,760	920
1871-80 . .	5,080	6,030	950
1881-88 . .	5,150	6,110	960
68 years . .	23,070	26,460	3,390

In 38 years, from 1851 to 1888, the expenditure surpassed income by 3300 millions sterling, say 87 millions yearly, which went mostly in wars and armaments.

The public debt, stated in millions £ sterling, was as follows :—

	1713	1763	1793	1816	1848	1870	1889
Great Britain .	54	147	370	900	773	801	698
France . . .	48	110	32	140	260	504	1,269
Germany . .	...	...	...	39	69	148	435
Russia . .	...	...	47	145	90	342	756
Austria . . .	10	15	42	99	125	340	580
Italy . . .	...	...	...	25	36	333	460
Spain . . .	7	11	20	117	113	285	260
Portugal . .	...	...	1	7	22	59	113
Holland . .	...	...	70	110	114	76	89
Belgium . .	...	...	...	...	25	28	77
Denmark . .	...	...	2	12	12	13	11
Sweden and Norway . }	...	...	...	...	2	6	20
Greece . .	...	...	...	...	10	18	23
Turkey . .	...	...	...	...	...	92	180
Roumania . .	...	...	...	...	...	...	36
Servia . . .	...	...	...	...	...	...	13
Europe . . .	119	283	584	1,594	1,651	3,045	5,020
United States .	...	...	17	26	10	485	221
Spanish America	...	...	...	...	17	135	333
Canada . .	...	...	...	...	5	17	49
Australia .	...	...	...	...	...	37	171
India . . .	...	...	9	29	51	108	186
Japan . .	...	...	...	...	2	10	50
Egypt . .	...	...	...	...	...	37	103
South Africa .	...	...	...	...	...	2	27
The world .	119	283	610	1,649	1,736	3,876	6,160

Debt has multiplied tenfold in ninety-six years. The annual increase since 1870 has averaged 118 millions sterling. The increase from the date of the Treaty of Utrecht, 1713, to the present is shown in successive stages thus :—

Period	Millions, £	Per Annum
		£
1713–63	164	3,300,000
1764–93	327	10,900,000
1794–1816	1,039	45,200,000
1817–1848	87	2,700,000
1849–70	2,140	97,300,000
1871–89	2,244	118,100,000
176 years . . , .	6,001	34,100,000

The origin of the debt may be approximately summed up thus :—

War and armaments . . .	3,610	millions
Railways and telegraph . . .	1,450	,,
Roads and bridges . . .	780	,,
Sundries	161	,,
	6,001	

In 1889 the interest which bondholders received, taking the various loans of nations at the prices current in the market, were as follows per £100 per annum.

	£			£
United Kingdom .	2.7	Austria . .	.	4.3
United States .	3.1	Chile . .	.	4.3
Belgium .	3.2	Russia . .	.	4.6
Holland .	3.3	Brazil . .	.	4.8
New South Wales .	3.4	Spain . .	.	4.9
Canada . .	3.5	Portugal .	.	5.0
Switzerland .	3.5	Argentina .	.	5.1
France . .	3.6	Egypt . .	.	5.1
Victoria . .	3.5	China . .	.	5.4
Cape Colony .	3.6	Buenos Ayres .	.	5.9
Prussia . .	3.7	Hawaii . .	.	6.0
Norway .	3.7	Santa Fé .	.	6.0
Sweden . .	3.8	Japan . .	.	6.3
New Zealand .	3.9	Uruguay .	.	6.6

The following table shows approximately the wealth and debt of the principal nations in 1888 :—

	Millions £ Sterling		
	Wealth	Debt	Ratio of Debt
United Kingdom . .	9,400	698	7.7
France	8,538	1,269	14.7
Germany . . .	6,437	435	6.8
Russia	5,089	756	14.8
Austria	3,855	580	15.0
Italy	2,963	460	15.5
Spain	2,516	260	10.3
Portugal . . .	408	113	27.5
Sweden and Norway .	880	20	2.2
Denmark . . .	404	11	2.8
Holland . . .	980	89	9.1
Belgium . . .	1,007	77	7.6
Switzerland . . .	494	17	3.5
Greece	300	23	7.7
Roumania . . .	593	36	6.1
Servia	217	13	6.0
Turkey	593	180	30.3
Europe	44,734	5,037	11.2
United States . .	12,824	221	1.7
Canada	980	49	5.0
Australia . . .	1,373	171	12.5
South Africa . .	135	27	20.0
Argentina . . .	509	110	21.6
Total . .	60,555	5,615	9.3

For local finances see *Local Taxation*.

UNITED KINGDOM

The financial year ends March 31. The various principal items of revenue and expenditure for 52 years to date are shown as follows :—

REVENUE IN MILLIONS £ STERLING

	1837–51	1852–61	1862–71	1872–81	1882–89	52 Years
Customs . . .	324	237	221	199	159	1,140
Excise . . .	216	181	204	268	210	1,079
Stamps . . .	101	78	94	110	95	478
Income-tax . .	55	102	78	71	103	409
Post-office . .	25	30	45	74	79	253
Sundries . .	66	50	69	77	58	320
Total . .	787	678	711	799	704	3,679

EXPENDITURE IN MILLIONS £ STERLING

	Millions £			
Years	Government	Debt	Army and Navy	Total
1837–51	139	395	219	753
1852–61	136	285	288	709
1862–71	164	265	263	692
1872–81	233	281	280	794
1882–89	238	222	247	707
52 years	910	1,448	1,297	3,655

Expenditure includes sums paid for redemption of national debt, and as this has been reduced 94 millions during the present reign, the net expenditure may be set down thus :—

	Millions £	Per Annum, £
Revenue of 52 years . .	3,679	70,700,000
Reduction of debt . . .	94	1,800,000
Real expenditure	3,585	68,900,000

The following table shows approximately the revenue and expenditure from the accession of William III. to the present time :—

Reign	Date	Millions £		Annual Average, £		Public Debt, Millions £
		Revenue	Expenditure	Revenue	Expenditure	
William III.	1689–1702	59	72	4,500,000	5,500,000	13
Anne	1702–14	62	122	5,200,000	10,200,000	73
George I.	1714–27	77	80	5,900,000	6,100,000	76
George II.	1727–60	217	276	6,600,000	8,400,000	135
George III.	1760–1820	1,666	2,252*	27,800,000	37,500,000	900
George IV.	1820–30	648	608	64,800,000	60,800,000	800
William IV.	1830–37	439	431	62,400,000	61,300,000	792
Victoria	1837–51	787	753	60,500,000	57,900,000	787
,, ...	1852–61	678	709	67,800,000	70,900,000	819
,, ...	1862–71	711	692	71,100,000	69,200,000	798
,, ...	1872–81	799	794	79,900,000	79,400,000	772
,, ...	1882–89	704	707	88,000,000	88,400,000	698

The following table shows the revenue of England down to 1707, of Great Britain from 1713 to 1810, and of the United Kingdom from the last-mentioned year down to date. The groat, 4d., from William the Conqueror down to Edward III., had more than three times as much silver as our shilling of to-day ; hence the real amount in silver must be distinguished from the nominal. The purchasing power of £1 sterling has also varied, and in the following table this is likewise given :—

Date	Reign	Nominal	In Silver	Purchasing Value	Shillings per Inhab. In Silver
		£	£	£	
1080	William I.	400,000	1,320,000	4,010,000	12
1090	Rufus	350,000	1,150,000	3,520,000	10
1120	Henry I.	300,000	990,000	3,005,000	9
1150	Stephen	250,000	830,000	2,510,000	8
1180	Henry II.	200,000	660,000	2,005,000	6
1210	John	100,000	330,000	1,000,000	3
1250	Henry III.	80,000	264,000	800,000	2½
1300	Edward I.	150,000	495,000	1,502,000	4½
1350	Edward III.	154,000	460,000	1,360,000	4
1400	Henry IV.	100,000	264,000	900,000	2
1480	Edward IV.	100,000	162,000	530,000	1
1500	Henry VII.	400,000	650,000	2,100,000	3
1540	Henry VIII.	800,000	1,300,000	2,600,000	6
1600	Elizabeth	500,000	550,000	1,000,000	2
1620	James I.	600,000	640,000	1,000,000	2½
1640	Charles I.	896,000	950,000	1,300,000	4½
1662	Charles II.	1,800,000	1,910,000	2,300,000	7
1686	James II.	2,002,000	2,120,000	2,300,000	8
1700	William III.	3,895,000	4,135,000	...	15
1713	Anne	5,692,000	6,030,000	...	18
1716	George I.	6,763,000	7,160,000	...	21
1728	George II.	8,523,000	9,030,000	...	25
1780	George III.	8,880,000	9,420,000	...	20
1790	,,	13,745,000	14,540,000	...	29
1800	,,	37,520,000	39,700,000	...	76
1810	,,	52,672,000	55,810,000	...	93
1820	George IV.	61,634,000	61,634,000	...	62
1830	William IV.	59,365,000	59,365,000	...	50
1840	Victoria	52,916,000	52,916,000	...	40
1850	,,	58,205,000	58,205,000	...	43
1860	,,	71,090,000	71,090,000	...	49
1870	,,	75,434,000	75,434,000	...	49
1880	,,	81,265,000	81,265,000	...	47
1889	,,	88,470,000	88,470,000	...	49

The value of the £ sterling in gold and silver coin was unaltered from the time of James II. until the year 1817, when the currency was debased 5 per cent., the same quantity of metal serving for 21s. as previously for 20s.

The following table shows the incidence of revenue and expenditure per inhabitant during the present reign :—

Shillings per Inhabitant Yearly

	Revenue				Expenditure			
	Customs	Excise	Sundries	Total	Army, &c.	Debt	Government	Total
1837–51	16.7	11.2	14.1	42.0	11.9	21.3	7.5	40.7
1852–61	16.9	12.8	18.5	48.2	20.5	20.3	9.7	50.5
1862–71	14.7	13.5	18.9	47.1	17.5	17.7	10.9	46.1
1872–81	12.2	16.2	20.2	48.6	16.9	17.0	14.2	48.1
1882–89	11.0	14.5	23.1	48.6	17.0	15.2	16.3	48.5

The following table shows the outlay compared with population over the whole period of 52 years, taking the mean population at 32 million souls :—

	Expenditure, Millions £	Average, £ Yearly	Shillings per Inhabitant Yearly
Army and navy .	1,297	24,940,000	15.7
Debt	1,354	26,040,000	16.3
Redemption of } debt . . . }	94	1,810,000	1.1
Government . .	910	17,500,000	11.0
Total . .	3,655	70,290,000	44.1

The following table shows how the three kingdoms contribute to the national revenue (1888) :—

	"Economist" Estimates			
	England, £	Scotland, £	Ireland, £	U. Kingdom, £
Stamps . .	7,440,000	840,000	440,000	8,720,000
Customs .	16,130,000	1,640,000	2,020,000	19,790,000
Excise . .	16,680,000	4,680,000	4,260,000	25,620,000
Income-tax .	12,500,000	1,180,000	600,000	14,280,000
Land, &c. .	2,790,000	160,000	...	2,950,000
Total .	55,540,000	8,500,000	7,320,000	71,360,000

* Loans amounting nominally to 733 millions sterling were emitted, the net product of which was 526 millions, which helped to meet deficit, there being also 60 millions of floating debt, which brings up the total expenditure to 2252 millions.

FINANCE 262 FINANCE

The above compare with the Treasury estimates thus:—

	Economist, £	Treasury, £	Ratio	
			Economist	Treasury
England . .	55,540,000	58,860,000	77.8	81.0
Scotland .	8,500,000	7,790,000	11.9	10.7
Ireland . .	7,320,000	6,080,000	10.3	8.3
Total .	71,360,000	72,730,000	100.0	100.0

If we compare the income-tax assessments with the share of revenue raised in each of the three kingdoms, we find, taking the latter at a medium between the " Economist" and the Treasury estimates, as follows :—

	Assessed Incomes	Revenue	Ratio of Latter to Income,
	£	£	£
England . .	542,500,000	57,200,000	10.6
Scotland . .	57,200,000	8,200,000	14.3
Ireland . . .	36,600,000	6,700,000	18.0
Total .	636,300,000	72,100,000	11.3

It would appear that England bears much less than her share, and the sister kingdoms a great deal too much.

Debt.—The National Debt began with William III., and reached its maximum in 1816, after the overthrow of Bonaparte, when the amount was variously estimated, viz. :—

		£
Doubleday	. . . . .	944,152,000
Porter	. . . . .	885,186,000
M'Culloch	. . . . .	840,850,000

The last mentioned appears to have regarded only the funded debt, the total, according to Whittaker, having stood thus in January 1816 :—

		£
Funded	. . . . . .	816,312,000
Unfunded	. . . . .	44,727,000
Terminable annuities	. .	39,397,000
Total . .		900,436,000

The estimated wealth of the nation, according to the best authorities, may be placed side by side with the debt to show the relative magnitude of the latter at different epochs :—

Date	Millions £ Stg.		Ratio of Debt	£ per Inhab.		Obs.
	Wealth	Debt		Wealth	Debt	
1702	490	13	2.7	72	2	England
1763	1,100	147	13.4	156	21	G. Britain
1797	1,800	413	22.9	177	41	,,
1816	2,400	900	37.5	120	45	U. K.
1837	3,900	788	20.2	158	32	,,
1860	5,560	826	14.9	193	29	,,
1870	7,080	801	11.3	230	26	,,
1889	9,400	698	7.4	250	19	,,

The history of the National Debt may be briefly explained thus:—

		Millions £	Date
Wars of William and Anne	.	73	1689–1712
Conquest of Canada	. .	62	1759–61
American war .	. . .	121	1775–80
Campaigns against Bonaparte .		581	1793–1815
Malversation in Ireland .	.	63	1802–16
Total in 1816	.	900	

The war loans negotiated by George II. and George III. amounted to 794 millions sterling, but produced in reality only 585 millions, or 73 per cent. of the written value, viz. :—

Years	Nominal Amount £	Realised £	Annual Charge £	Actual Interest
1756–63	60,670,000	59,500,000	2,315,000	3.90
1776–84	114,687,000	92,700,000	5,012,000	5.40
1785–1816	618,404,000	433,000,000	23,387,000	5.40
60 years	793,761,000	585,200,000	30,714,000	5.25

The principal conversions of debt were the following :—

Date	Minister	Sum, £	Annual Saving, £
1716	Walpole	32,500,000	325,000
1749	Pelham	56,500,000	565,000
1822	Vansittart	153,000,000	1 530,000
1824	Robinson	76,000,000	380,000
1830	Goulburn	153,000,000	760,000
1844	,,	248,000,000	1,240,000
1860–74	Gladstone	59,000,000	330,000
1884	,,	79,000,000	...
1888	Goschen	549,100,000	1,400,000

Walpole and Vansittart converted 5 into 4 per cents., Pelham 4 into 3 per cents., Robinson 4 into 3½ per cents. The conversions effected by Gladstone were connected with sums held in the Court of Chancery and Savings-bank funds. Goschen's conversion reduced the 3 per cents. into new stock bearing 2¾ per cent. for a number of years, after which to be reduced to 2½ per cents., which latter will lead to an annual saving of £2,800,000, as compared with the interest payable in 1887.

In March 1889 the debt was made up thus :—

		£
Funded . . .	. . .	607,058,000
Terminable annuities	. .	75,279,000
Unfunded debt .	. .	16,093,000
Total . . .		698,430,000

The following table shows the quotations of Consols :—

Period	Debt, Millions £	Quotations			Year of	
		Maximum	Minimum	Average	Highest	Lowest
1740–60 . . .	78	104	82	93.5	1749	...
1761–80 . . .	139	91	61	82.1	...	1780
1781–1800 . .	240	97	47	67.2	..	1798
1801–20 . .	841	84	50	64.9	1817	1803
1821–40 . .	781	97	69	85.8	1824	1821
1841–60 . .	786	102	79	93.4	1852	1847
1861–81 . .	776	103	84	93.1	1867	1866
1882–88 . . .	740	103	96	100.8	1883	1885

The following table shows the number of holders of Consols at various dates :—

Average, £	1830	1848	1880
100,000	172	177	283
50,000	1,810	1,550	1,892
10,000	22,189	20,561	19,140
3,000	124,014	120,487	112,077
500	132,960	141,352	103,122
Total	281,145	284,127	236,514

Unclaimed dividends in March 1882 amounted to £3,027,000.

When Mr. Goschen converted the debt in 1889, no fewer than 12,700 notices were returned by the Post-Office as "not known." After every inquiry, £7,850,000 was unclaimed, and credited to 10,900 accounts in the Bank of England; most were probably dead or gone away.

SCOTLAND

Official returns of Scottish revenue show as follows:—

Period	Annual Average	Per Inhabitant
	£	£ s. d.
1804-09 . . .	3,500,000	2 1 0
1810-15 . . .	4,950,000	2 15 0

In the estimate already given for 1881 the revenue of Scotland appears as £9,990,000, or 54s. per inhabitant, almost the same as the ratio of 75 years ago.

IRELAND

Ware says that the revenue of the royal palace at Kincora was 5100 horned cattle, 100 horses, and 4800 swine, contributed yearly by the various chieftains. Noy states that Edward III. drew £30,000 from Ireland for the campaigns of the Black Prince. Henry VII. levied a duty of 5 per cent. *ad valorem* on all Irish imports and exports, which would probably produce £10,000 a year. Regular records were kept under William III. and subsequent monarchs, which show as follows:—

Period	Annual Average, £	Per Inhab.
		£ s. d.
1690–1700	640,000	0 7 6
1730–60	620,000	0 6 3
1761–70	890,000	0 6 8
1771–80	1,340,000	0 9 6
1790	2,162,000	0 11 0
1802–10	5,480,000	1 0 2
1811–16	7,400,000	1 5 0
1817–20	5,850,000	0 17 0
1821–30	4,930,000	0 14 0

In 1801 the Act of Union ordained the revenues and debt of Ireland to be kept distinct. The debt was:—

Year	£
1784	1,997,000
1793	2,220,000
1801	31,950,000
1809	77,445,000

The finances got into very bad hands after the Union. The Budgets of Ireland from 1802 to 1816 summed up as follows:—

Period	Revenue	Expenditure	Deficit
	£	£	£
1802–10 . . .	49,400,000	89,500,000	40,100,000
1811–16 . . .	44,200,000	90,300,000	46,100,000
15 years . . .	93,600,000	179,800,000	86,200,000

In 1817 Great Britain took over the Irish debt and amalgamated the finances of the two countries, but separate statements of revenue were published down to 1831, from which date none have been kept. The revenue from 1821 to 1830 was made up thus:—

	Annual Average, £
Customs	1,920,000
Excise	1,940,000
Sundries	1,070,000
Total .	4,930,000

FRANCE

The revenue at various periods has been as follows:—

Date	Reign	Amount	Per Inhabitant	National Debt, Millions £
		£	£ s. d.	
1252	Louis IX. . . .	140,000	0 0 4	...
1380	Charles V. .	120,000	0 0 4	...
1460	Charles VII. .	150,000	0 0 4	...
1546	Francis I. . .	640,000	0 1 0	...
1607	Henry IV. .	1,300,000*	0 2 0	...
1661	Louis XIV. .	3,400,000	0 4 0	...
1683	,,	4,800,000	0 5 6	48
1742	Louis XV. .	13,700,000	0 13 0	110
1775	Louis XVI. .	14,800,000	0 12 0	129
1786	,,	20,800,000	0 16 0	200
1791	,,	27,800,000	1 2 0	468
1814	Napoleon I. .	40,000,000	1 7 0	50
1830	Charles X. .	36,500,000	1 2 6	187
1846	Louis Philippe	46,400,000	1 7 0	260
1850	Republic .	51,000,000	1 9 0	248
1860	Napoleon III.	68,500,000	1 16 0	410
1870	,,	87,600,000	2 6 0	504
1880	Republic . .	135,700,000	3 10 0	1,060
1889	,, . .	121,800,000	3 5 0	1,269

* The gross revenue, including tithes and local taxes, was £3,800,000; the royal revenue as here given.

The following is an official statement of national revenue and expenditure during 71 years to 1885:—

Period	Millions £ Sterling		
	Revenue	Expenditure	Excess of Latter
1815–20 . . .	211	257	46
1821–30 . . .	384	402	18
1831–40 . . .	419	458	39
1841–50 . . .	504	610	106
1851–60 . . .	619	762	143
1861–70 . . .	781	926	145
1871–80 . . .	1,151	1,301	150
1881–85 . . .	687	814	127
71 years . . .	4,756	5,530	774

Some extraordinary items, such as the indemnity to Germany in 1872, are omitted. The above may be also stated according to the successive forms of government as follows:—

Reign	Date	Millions £		Annual Average, £		Debt, Millions £
		Revenue	Expenditure	Revenue	Expenditure	
Bourbons	1815–30	595	659	36,800,000	41,100,000	177
Louis Philippe . . .	1831–48	749	979	47,800,000	50,600,000	230
Republic	1848–52	220	280	55,000,000	70,000,000	290
Empire	1853–70	1,354	1,497	74,500,000	82,200,000	468
Republic	1871–80	1,151	1,301	115,100,000	130,100,000	1,060
,, ...	1881–88	1,118	1,280	139,700,000	160,000,000	1,269
74 years	...	5,187	5,996	...	...	...

During the decade 1871–80 loans were emitted to the nominal sum of 410 millions sterling, producing 329 millions, besides which about 65 millions were added to floating debt. The following table shows the expenditure at different dates :—

	1830	1851	1869	1877	1885
	£	£	£	£	£
Debt	14,500,000	16,600,000	21,400,000	47,600,000	52,800,000
Army	7,500,000	11,800,000	16,800,000	21,600,000	24,000,000
Navy	2,600,000	4,200,000	7,200,000	7,700,000	12,400,000
Public works	1,600,000	4,900,000	5,200,000	9,200,000	16,800,000
Government	10,300,000	13,500,000	35,200,000	38,900,000	51,700,000
Total	36,500,000	51,000,000	85,800,000	125,000,000	157,700,000

The increase in items of revenue is as follows :—

	1869	1875	1885	Ratio of Increase		
				1869	1875	1885
	£	£	£			
Customs	5,800,000	10,700,000	16,800,000	100	184	290
Excise	25,100,000	42,300,000	42,600,000	100	169	170
Stamps	18,200,000	24,300,000	27,000,000	100	134	149
Taxes	23,000,000	27,400,000	30,300,000	100	119	132
Post-office	3,800,000	4,800,000	6,600,000	100	126	173
Sundries	8,300,000	14,500,000	18,300,000	100	175	220
Total	84,200,000	124,000,000	141,600,000	100	148	170

The total revenue and expenditure in the decade 1871–80 were as follows :—

MILLIONS £ STERLING

	Revenue		Expenditure
Customs	109	Franco-German war	304
Excise	386	Army and navy	305
Stamps	240	Debt and pensions	466
Direct taxes	271	Justice and schools	60
Post-office	44	Public works	90
Sundries	101	Gen. administration	380
Total	1,151	Total	1,605

Mr. Yves Guyot compares the rise of revenue since the Bonaparte epoch * thus :—

	1800-10	1822	1840	1860	1870	1880
Customs	100	154	198	190	171	408
Stamps	100	92	130	203	223	400
Property-tax	100	85	85	92	102	112
Value of land	100	140	...	370	400	366

Debt.—This began with Louis XIV., who spent great sums in war and in building Versailles. It increased with John Law's state-bank, and rose in the latter years of Louis XVI. to 468 millions sterling. It was repudiated by the Republic, some creditors getting 33 per cent., the rest nothing, and thus reduced to about 30 millions sterling. At the fall of Bonaparte it was only 50 millions. Of late years the accounts published are incomplete, but M. Leroy Beaulieu estimates it now at

* The Budget for 1802 was made up thus :—

	Revenue		Expenditure
	£		£
Land-tax	8,800,000	Army	9,700,000
Forests	7,600,000	Navy	5,100,000
Customs, &c.	6,400,000	Government	6,200,000
Total	22,800,000	Total	21,000,000

1269 millions sterling, exclusive of municipal debts. The official returns are as follows :—

Year	Millions £ Sterling		
	Funded	Floating	Total
1814	50	...	...
1830	177	10	187
1848	238	22	260
1852	221	27	248
1869	468	36	504
1880	794	61	855
1886	789	40	829

These returns are misleading, as it would appear from them that the debt declined 26 millions between 1880 and 1886, whereas it increased. Even the Budget returns show a deficit of 93 millions sterling in those six years, the aggregate revenue being 834 millions, expenditure 927 millions. The floating debt in 1888 was officially stated at 118 millions sterling. The following table shows the funded debt at various dates :—

Year	Millions £ Sterling				
	5 per Cent.	4½ per Cent.	4 per Cent.	3 per Cent.	Total
1814	51	...	...	...	51
1830	131	1	3	42	177
1848	117	1	26	94	238
1852	146	1	2	72	221
1871	...	33	...	465	498
1880	276	33	...	485	794
1887	...	301	...	527	828

The floating debt at different dates was stated thus :—

Year	Millions £ Sterling			
	Exchequer Bills	Savings Banks	Sundries	Total
1860	5.7	9.2	17.5	32.4
1869	4.6	10.2	17.0	31.8
1880	6.2	23.5	31.5	61.2
1888	59.1	38.4	21.0	118.5

Taking the total debt at M. Leroy Beaulieu's estimate of 1269 millions, it may be said approximately to represent the following extraordinary outlay :—

	Millions £
Bonaparte's wars	51
Restoration indemnities . . .	60
Conquest of Algeria	38
Crimean war	93
Wars in Italy, Mexico, &c. . .	33
Franco-German	316
Sundries	678
Total . .	1269

There was a loss of 200 millions on the issue of loans, and an expenditure of 260 millions on public works, which leaves a balance of 218 millions for sundries unaccounted for. The loans issued between 1816 and 1881 were as follows :—

Period	Number of Loans	Issue, £	Realised, £	Per Cent.
1816–30	11	80,000,000	57,500,000	72
1831–48	13	95,000,000	70,400,000	74
1849–69	14	200,000,000	134,600,000	67
1870–81	6	410,000,000	329,000,000	80
Total	44	785,000,000	591,500,000	75

The interest paid yearly on the above loans was as follows :—

Period	Sum Realised, £	Interest, £	Rate
1816–30 . .	57,500,000	3,970,000	6.9
1831–48 . .	70,400,000	3,850,000	5.5
1849–69 . .	134,600,000	6,240,000	4.6
1870–81 . .	329,000,000	18,140,000	5.5

The total issues of 65 years are summed up thus :—

	Millions £
6 per cent	10
5 ,, ...	400
4½ ,, ...	16
4 ,, ...	11
3 ,, ...	348
Total	785

If we compare the debt of France with the estimated wealth at various dates, we find thus :—

Year	Millions £ Sterling		Ratio of Debt
	Wealth	Debt	
1830	3,480	187	5.3
1848	5,000	260	5.2
1869	7,000	504	7.2
1889	8,600	1,269	14.7

The burden of debt is almost double what it is in the United Kingdom. See also *Local Taxation.*

GERMANY

The revenue and debt of Prussia singly, and also of Prussia and the other States now composing the German Empire, were at various dates approximately as follows:—

Year	Prussia		Germany	
	Revenue, £	Debt, £	Revenue, £	Debt, £
1752	1,800,000	...	...	...
1786	5,400,000	...	...	...
1801	4,700,000	4,500,000	10,000,000	8,000,000
1810	2,700,000	10,000,000	11,500,000	20,000,000
1822	7,000,000	14,000,000	14,400,000	39,000,000
1850	13,300,000	27,000,000	23,800,000	69,000,000
1865	21,800,000	42,200,000	36,000,000	128,300,000
1875	34,700,000	65,000,000	85,000,000	215,000,000
1890	79,300,000	207,300,000	154,700,000	434,800,000

The revenue and expenditure of Germany since 1850 may be stated approximately as follows :—

Period	Millions £		Yearly Average	
	Revenue	Expenditure	Revenue, £	Expenditure, £
1851–70	740	850	37,000,000	42,500,000
1871–80	725	840	72,500,000	84,000,000
1881–89	1,050	1,170	117,000,000	130,000,000
39 years	2,515	2,860	64,500,000	73,300,000

	Revenue, £				
	1822	1850	1867	1882	1887
Prussia	7,000,000	13,300,000	25,300,000	39,000,000	64,400,000
Bavaria	2,500,000	4,000,000	5,900,000	11,100,000	12,000,000
Wurtemburg . . .	1,000,000	1,100,000	1,300,000	2,500,000	2,700,000
Saxony	900,000	1,400,000	2,200,000	3,200,000	3,800,000
Other States . . .	3,000,000	4,000,000	5,800,000	10,700,000	11,200,000
Total . .	14,400,000	23,800,000	40,500,000	66,500,000	94,100,000

The total for 1882 and 1887 do not include the Imperial revenue.

The revenue of Prussia from 1822 to 1833 averaged thus :—

	£
Customs	3,200,000
Land-tax	2,700,000
Sundries	1,900,000
Total . . .	7,800,000

The total revenue of Germany is made up approximately as follows :—

	£
Customs	13,500,000
Income-tax	12,500,000
Excise	22,100,000
Stamps, &c. . . .	16,800,000
Railways	55,000,000
Post-office, domains, &c. .	34,800,000
Total . .	154,700,000

It may also be classified thus :—

	£
Imperial taxes	27,700,000
Direct State taxes . .	13,700,000
Indirect State taxes . .	23,500,000
Railways	55,000,000
Post-office, domains, &c. .	34,800,000
Total . .	154,700,000

Besides the Imperial taxes the Empire receives "matricular quotas" from the several States in this order (1890) :—

	£			£
Prussia . .	7,800,000	Baden . . .		500,000
Bavaria . .	1,900,000	Alsace . . .		500,000
Saxony . .	900,000	Hesse . . .		260,000
Wurtemburg .	700,000	Others . . .		940,000

Making a total of £13,500,000 sterling. These matricular quotas are included in the revenue of the several States.

The total Budgets for 1890 may be summed up thus :—

	£
Imperial revenue	60,400,000
Prussian budget	79,300,000
Bavaria, Saxony, &c. . .	28,500,000
Total . . .	168,200,000
Deduct repetitions . . .	13,500,000
Total revenue . .	154,700,000

The reason for deducting repetitions is that the "matricular quotas" are counted in the State Budgets and also in that of the Empire.

The civil list of the Emperor is defrayed solely by Prussia, and reaches £786,000, of which £386,000 arises from crown forests, the rest from ordinary revenue.

As near as we can ascertain the debts of the several States at different periods, they stood thus :—

	1820-22	1849-50	1889
	£	£	£
Prussia	14,000,000	27,000,000	222,500,000
Bavaria . . .	9,200,000	10,700,000	67,100,000
Saxony	3,700,000	7,000,000	32,700,000
Wurtemburg . .	2,000,000	4,800,000	21,700,000
Baden	2,000,000	3,300,000	19,400,000
Hamburg . . .	1,200,000	1,600,000	11,800,000
Brunswick . . .	1,000,000	1,500,000	3,600,000
Small States . .	6,000,000	13,100,000	10,800,000
Total . .	39,100,000	69,000,000	389,600,000

The total for 1889 does not include the Imperial debt, which is £45,200,000, bringing up the whole debt of the nation to nearly 435 millions sterling.

The debt of Germany in 1887 stood as follows :—

Class	Amount, Million £	Interest, £
4 per cents. . . .	310	12,400,000
3½ per cents. . .	50	1,750,000
Various	59	2,550,000
Total . .	419	16,700,000

There are 20,000 miles of State railways, representing a value of 410 millions sterling, that is, practically the whole sum of public debt. Hence it would be in a manner justifiable to say that Germany has no public debt.

RUSSIA

Revenue and debt have been so violently affected by the fluctuation of currency, that they can only be taken approximately at the various dates, thus :—

Year	Reign	Revenue, £	Millions £ Funded Debt	Millions £ Total Debt
1620	Michael . .	160,000	...	...
1725	Peter I. . .	1,600,000	...	...
1799	Paul . . .	3,900,000	7	47
1806	Alexander I. .	9,500,000	7	95
1810	,,	11,200,000	7	146
1840	Nicholas . .	17,600,000	40	150
1861	Alexander II. .	54,000,000	90	200
1875	,,	74,400,000	240	370
1889	Alexander III.	89,900,000	624	756

In 1799 the revenue was made up thus :—

	£
Customs	700,000
Serf-tax	1,500,000
Liquor-tax	700,000
Sundries	1,000,000
Total . .	3,900,000

The finances since 1850 may be summed up approximately thus :—

Period	Millions £ Revenue	Millions £ Expenditure	Annual Average Revenue	Annual Average Expenditure
1851-70	840	1,050	42,000,000	52,500,000
1871-80	603	903	60,300,000	90,300,000
1881-87	518	668	74,000,000	95,400,000
37 years	1,961	2,621	53,000,000	70,800,000

The items of Russian revenue and expenditure have been as follows, reduced to gold values :—

	Revenue 1875	Revenue 1889		Expenditure 1875	Expenditure 1889
	£	£		£	£
Customs	8,300,000	14,100,000	Debt	14,400,000	27,900,000
Excise	29,700,000	31,100,000	Army	23,300,000	21,200,000
Poll-tax . . .	16,000,000	8,200,000	Navy	3,500,000	4,100,000
Post-office . . .	2,100,000	2,900,000	Interior . . .	7,000,000	7,200,000
Crown lands . .	3,200,000	3,300,000	Schools . . .	1,900,000	2,100,000
Sundries . . .	15,100,000	30,300,000	Sundries . . .	22,300,000	25,700,000
Total . .	74,400,000	89,900,000	Total . .	72,400,000	88,200,000

The above includes extraordinary expenditure. New railways, for example, took 19 millions sterling during the interval of 1884–87.

Debt.—It commenced with the issue of inconvertible notes, which rose as follows :—

Year				£ Sterling	Exchange per 100 Gold Roubles
1774	.	.	.	3,250,000	103
1796	.	.	.	25,600,000	190
1800	.	.	.	34,600,000	220
1810	.	.	.	93,800,000	300
1815	.	.	.	145,000,000	418
1823	.	.	.	96,800,000	360
1843	.	.	.	27,000,000	100
1850	.	.	.	49,000,000	100
1864	.	.	.	113,000,000	105
1873	.	.	.	130,000,000	116
1880	.	.	.	190,000,000	170
1888	.	.	.	174,500,000	170

In 1843 the Empire was declared bankrupt, the Treasury calling in the paper issue of 97 millions sterling, and giving the holders new notes of 2 roubles for 7 of the old currency. The new issue began to lose value in 1864, and has now depreciated 40 per cent., a paper rouble being worth only 60 kopecks silver, that is to say, a silver rouble is worth 170 kopecks of paper-money. The first foreign loan was in 1818, which was followed by another in 1820. The growth of debt since 1842 is shown as follows :—

Year	Millions £			
	Foreign	Internal	Paper-Money	Total
1842 . . .	6	23	8	37
1852 . . .	12	61	22	95
1862 . . .	41	99	61	202
1872 . . .	105	133	104	342
1882 . . .	189	273	161	623
1888 . . .	216	408	132	756

In the above table only "uncovered" paper-money is counted under that heading. Most of the debt being payable in paper-money worth 2s. per rouble, the debt may be properly put down thus : Foreign 216, internal 324, total 540 millions sterling. The origin of the debt may be approximately set down thus :—

	Millions £
Redemption of serfs	85
Railways and telegraphs	170
Crimean war	142
Turkish war	133
Sundries	226
Total . .	756

In 1887 the existing railway loans amounted to 143 millions sterling.

AUSTRIA-HUNGARY

The revenue and expenditure since 1831 were approximately :—

Period	Millions £		Yearly Average, £	
	Revenue	Expenditure	Revenue	Expenditure
1831–50	340	440	17,000,000	22,000,000
1851–70	720	940	36,000,000	47,000,000
1871–80	560	630	56,000,000	63,000,000
1881–88	544	652	68,000,000	81,500,000
58 years	2,164	2,662	37,300,000	46,000,000

The revenue and debt are shown approximately thus :—

Year	Millions £		Year	Millions £	
	Revenue	Debt		Revenue	Debt
1740	4	12	1862	35	252
1793	8	42	1872	51	324
1815	12	83	1880	62	420
1840	16	125	1889	78	580

The general revenue and expenditure are made up thus (1889) :—

	Revenue, £		Expenditure, £
Customs . . .	3,300,000	Army . .	9,500,000
Austrian quota .	5,800,000	Navy . .	900,000
Hungarian quota	2,700,000	Sundries .	600,000
Total . .	11,800,000	Total .	11,000,000

The special budgets of Austria and Hungary may be stated thus :—

	Revenue, £	Expenditure, £
Austria	45,300,000	45,000,000
Hungary	29,500,000	29,600,000
Total .	74,800,000	74,600,000

These Budgets include the quotas previously mentioned for the joint or general revenue. The total outlay, therefore, of the whole monarchy is £78,100,000, at the current rate of exchange in 1889, that is, 20d. to the florin.

The finances of Austria proper in 1889 were :—

	Revenue, £		Expenditure, £
Customs . . .	3,100,000	Imperial quota . .	5,800,000
Excise	16,800,000	Debt	12,000,000
Property-tax . .	8,500,000	Army and navy.	8,500,000
Stamps. . . .	1,600,000	Schools . . .	1,000,000
Lottery . . .	1,800,000	Board of Trade.	4,700,000
Post-office and railways }	6,200,000	Justice . . .	1,700,000
		Government . .	11,400,000
Sundries . . .	7,300,000		
Total . .	45,300,000	Total . .	45,100,000

The Hungarian budget for 1889 was as follows :—

	Revenue, £		Expenditure, £
Trade items . .	5,300,000	Imperial quota .	2,700,000
Agricultural . .	1,000,000	Debt	11,000,000
Financial . . .	22,200,000	Army	900,000
Sundries . . .	1,200,000	Government, &c.	15,100,000
Total . .	29,700,000	Total . .	29,700,000

The whole debt of the Empire was as follows :—

					1875	1889
					£	£
General .	.	.	.	.	300,800,000	320,000,000
Austrian .	.	.	.	.	33,200,000	105,900,000
Hungarian	.	.	.	.	72,000,000	154,500,000
Total	.				406,000,000	580,400,000

ITALY

Estimates were made in 1810, in 1830, and again in 1850 of the revenue and debt of the various States, excepting those provinces held by Austria. Since 1861 the kingdom of Italy publishes official returns :—

Year	Revenue, £	Funded Debt, £	Total Debt, £
1810	4,600,000	...	...
1830	8,300,000	...	48,300,000
1850	12,000,000	...	...
1861	38,000,000	85,000,000	97,000,000
1870	48,000,000	242,000,000	333,000,000
1880	55,000,000	322,000,000	393,000,000
1890	72,000,000	363,000,000	460,000,000

Revenue and expenditure since 1860 have been approximately as follows :—

	Millions £ Sterling	
	Revenue	Expenditure
1861–70 . . .	430	660
1871–80 . . .	534	594
1881–87 . . .	440	505
27 years . . .	1,404	1,759

The annual excess of expenditure over revenue since 1861 has been about 13 millions sterling.

The revenue and debt of the various States in 1830 showed as follows :—

	Population	Revenue, £	Debt, £	Per Head, £	
				Revenue	Debt
Naples	7,420,000	3,400,000	20,000,000	0.45	2.70
Sardinia	4,160,000	2,600,000	4,000,000	0.63	0.98
Church	2,590,000	1,200,000	24,000,000	0.45	9.20
Tuscany	1,280,000	700,000	...	0.55	...
Parma and Modena . .	790,000	400,000	300,000	0.50	0.40
Total . .	16,240,000	8,300,000	48,300,000	0.51	5.80

The items of ordinary revenue at various dates were :—

	1871	1880	1888	Ratio	
				1871	1888
	£	£	£		
Customs . .	3,200,000	5,000,000	9,800,000	100	306
Excise . . .	5,900,000	7,400,000	9,800,000	100	166
Property-tax .	13,400,000	14,400,000	15,800,000	100	118
Grist-tax .	1,700,000	2,200,000	...	...	...
Lottery . .	3,400,000	2,900,000	3,400,000	100	100
Stamps . .	1,200,000	1,600,000	1,500,000	100	125
Post-office .	1,100,000	1,500,000	2,400,000	100	218
Sundries . .	11,400,000	17,300,000	20,900,000	100	183
Total .	41,300,000	52,300,000	63,600,000	100	154

The incidence of debt and interest on population showed thus :—

Year	Debt, Millions £	Interest, £	Debt per Inhabitant, £	Interest per Inhabitant, Shillings
1850	40	2,000,000	2.0	2
1861	97	4,600,000	4.4	4
1870	333	16,600,000	13.0	13
1880	393	19,700,000	14.0	14
1887	460	20,700,000	15.0	14

The expenditure was made up as follows :—

	1871	1880	1888
	£	£	£
Debt	15,200,000	17,400,000	20,700,000
Army	6,400,000	8,300,000	12,900,000
Navy	1,200,000	1,700,000	4,900,000
Public works . .	4,800,000	5,300,000	14,600,000
Schools	600,000	1,100,000	1,500,000
Government . .	22,900,000	21,600,000	26,000,000
Total . .	51,100,000	55,400,000	80,600,000

Debt.—This has grown very rapidly, the increase since 1861 being 363 millions sterling, say 14 millions per annum. It may be approximately accounted for as follows :—

	Millions £
Railways	80
War and military expenditure . . .	270
Sundries	110
Total . . .	460

Communal and provincial finances in 1885 showed :—

	£
Revenues	27,200,000
Debts	41,400,000

SPAIN

From official and other statements we find as follows :—

Year	Reign	Revenue, £	Debt, £
1610	Philip III.	1,320,000	40,000,000
1670	Charles II.	1,930,000	...
1750	Ferdinand VI.	3,320,000	11,000,000
1780	Charles III.	6,400,000	20,000,000
1808	Ferdinand VII.	6,000,000	69,000,000
1817	,,	7,130,000	117,000,000
1836	Isabella II.	8,500,000	276,000,000
1850	,,	11,500,000	113,000,000
1868	,,	21,000,000	221,000,000
1878	Alfonso XII.	29,500,000	550,000,000
1888	Alfonso XIII.	35,400,000	260,000,000

Revenue and expenditure since 1831 have been approximately as follows :—

Period	Millions £		Annual Average, £	
	Revenue	Expenditure	Revenue	Expenditure
1831–50	210	320	10,500,000	16,000,000
1851–70	320	410	16,000,000	20,500,000
1871–80	298	450	29,800,000	45,000,000
1881–88	264	284	33,000,000	35,500,000
58 years	1,092	1,464	19,000,000	25,400,000

The finances of Spain for 1887 showed as follows :—

	Revenue, £		Expenditure, £
Customs . . .	6,900,000	Debt	10,900,000
Direct taxes . .	12,400,000	Army and navy	7,300,000
Indirect taxes .	12,600,000	Public works .	4,000,000
Sundries . . .	2,100,000	Sundries . .	11,800,000
Total . .	34,000,000	Total . .	34,000,000

Debt.—It amounted in 1556 to one million sterling, rising to 40 millions under Philip III., after whose reign it was repudiated. A new debt arose with the War of Succession, which reached eight millions sterling in 1713, and went on increasing till Ferdinand repudiated the most of it. A third debt was caused by the wars of Isabella II. and the Carlists, which reached 276 millions, and was likewise repudiated, holders getting new scrip for about 30 per cent. of the old stock. The fourth debt amounted to 550 millions, when Spain again compounded in 1882, giving bondholders about 40 per cent. in new scrip.

The actual debt stands thus :—

	Amount, £	Interest, £
4 per cent. foreign . . .	78,800,000	3,100,000
Home debt, 4 and 4½ per cent.	143,200,000	5,700,000
Floating, &c.	38,000,000	1,200,000
Total . .	260,000,000	10,000,000

PORTUGAL

Various statements since 1810 show revenue and debt as follows :—

Year			Revenue, £	Debt, £
1810 .	.	.	1,200,000	...
1825 .	.	.	2,200,000	7,000,000
1840 .	.	.	2,700,000	17,000,000
1850 .	.	.	3,200,000	22,000,000
1878 .	.	.	5,700,000	94,000,000
1888 .	.	.	8,400,000	113,000,000

The finances in 1887 were as follows :—

	Revenue, £		Expenditure, £
Customs . . .	4,000,000	Debt	3,600,000
Property-tax . .	700,000	Army and navy .	1,400,000
Sundries . . .	3,700,000	Government . .	4,000,000
Total . .	8,400,000	Total . .	9,000,000

Since 1850 expenditure has exceeded revenue by 80 millions, say two millions per annum.

Revenue and expenditure since 1831 were approximately as follows :—

Period	Millions £		Annual Average, £	
	Revenue	Expenditure	Revenue	Expenditure
1831–50	54	74	2,700,000	3,700,000
1851–70	80	120	4,000,000	6,000,000
1871–80	58	87	5,800,000	8,700,000
1881–88	60	72	7,500,000	9,000,000
58 years	252	353	4,300,000	6,000,000

Debt.—This dates from 1500, but was small in amount till the middle of the present century. It consists at present of 51 millions foreign 3 per cents., 58 millions home 3 per cents., and four millions of floating debt.

SWEDEN AND NORWAY

The revenue of these two kingdoms showed as follows :—

Year	Sweden, £	Norway, £	Total, £
1810	1,000,000	...	...
1822	1,300,000	300,000	1,600,000
1850	1,500,000	800,000	2,300,000
1878	4,100,000	2,400,000	6,500,000
1888	4,800,000	2,400,000	7,200,000

Before the annexation of Norway the finances of Sweden showed thus :—

	1772	1784
	£	£
Crown lands . . .	330,000	330,000
Sundries	730,000	920,000
Total . .	1,060,000	1,250,000

The Swedish debt in 1784 amounted to £8,800,000 sterling.

The items composing the revenue of the two kingdoms in 1887 were :—

	Sweden, £	Norway, £	Total, £
Customs . . .	2,000,000	1,100,000	3,100,000
Excise	840,000	230,000	1,070,000
Property-tax . .	440,000	...	440,000
Railways . . .	330,000	330,000	660,000
Post-office . . .	330,000	170,000	500,000
Sundries . . .	860,000	570,000	1,430,000
Total . .	4,800,000	2,400,000	7,200,000

The expenditure in 1887 showed as follows :—

	Sweden, £	Norway, £	Total, £
Debt	500,000	200,000	700,000
Army and navy .	1,100,000	350,000	1,450,000
Schools	600,000	240,000	840,000
Government . .	2,600,000	1,610,000	4,210,000
Total . .	4,800,000	2,400,000	7,200,000

Revenue and expenditure for the two kingdoms collectively may be stated approximately since 1831 as follows :—

	Millions £		Annual Average, £	
	Revenue	Expenditure	Revenue	Expenditure
1831–50	42	42	2,100,000	2,100,000
1851–70	66	74	3,300,000	3,700,000
1871–80	69	74	6,900,000	7,400,000
1881–88	56	61	7,000,000	7,600,000
58 years	233	251	3,800,000	4,200,000

Debt.—The amount at various dates is shown thus :—

Year	Sweden, £	Norway, £	Total, £
1784	8,800,000	...	8,800,000
1840	1,200,000	300,000	1,500,000
1876	9,800,000	3,900,000	13,700,000
1888	13,700,000	5,900,000	19,600,000

State railways represent an outlay of £19,800,000, so that it may be said that the public debt of Sweden and Norway is merely a nominal one.

DENMARK

Revenue and debt since 1771 are shown thus :—

Year	Revenue, £	Debt, £
1771 . . .	1,060,000	3,000,000
1786 . . .	1,580,000	5,800,000
1810 . . .	1,100,000	10,000,000
1835 . . .	1,560,000	14,100,000
1850 . . .	1,500,000	11,800,000
1866 . . .	2,000,000	14,800,000
1882 . . .	3,000,000	11,100,000
1889 . . .	3,040,000	10,800,000

Before the French revolution Denmark comprised not only that kingdom and the duchies of Schleswig-Holstein, but also Norway; and the Budget of 1786 showed as follows :—

Revenue, £		Expenditure, £	
From Denmark .	900,000	Army and navy .	600,000
,, Duchies. .	300,000	Debt	260,000
,, Norway. .	380,000	Civil service . .	670,000
Total .	1,580,000	Total .	1,530,000

The Budgets of 1872 and 1890 compare thus :—

The revenue of Denmark in the eighteenth century consisted partly of a land-tax, averaging 1s. per acre. The Budget of 1835 was made up as follows :—

Revenue, £		Expenditure, £	
Land and forests .	520,000	Army	300,000
Customs . . .	390,000	Debt	530,000
Sundries . . .	650,000	Government . .	750,000
Total . .	1,560,000	Total . .	1,580,000

Denmark contributed £1,060,000, the duchies £500,000 to the revenue.

The revenue and expenditure from 1831 were approximately as follows :—

	Millions £		Annual Average, £	
	Revenue	Expenditure	Revenue	Expenditure
1831–50	28	28	1,400,000	1,400,000
1851–70	36	40	1,800,000	2,000,000
1871–80	27	23	2,700,000	2,300,000
1881–87	21	21	3,000,000	3,000,000
57 years	112	112	1,900,000	1,900,000

	Revenue, £			Expenditure, £	
	1872	1890		1872	1890
Customs . . .	900,000	1,400,000	Debt	530,000	390,000
Property-tax . . .	400,000	500,000	Army and navy . .	710,000	920,000
Stamps . . .	100,000	150,000	Schools . . .	40,000	110,000
Railways . . .	60,000	210,000	Public works . .	100,000	170,000
Sundries . . .	610,000	780,000	Sundries . . .	650,000	1,610,000
Total . .	2,070,000	3,040,000	Total . .	2,030,000	3,200,000

In 1856 Denmark received £3,600,000 from the European Powers for abolition of the Sound Dues. In 1864 Schleswig-Holstein, on joining Prussia, took over £3,300,000 of the Danish debt.

HOLLAND

Revenue and debt at various dates stood thus :—

Year	Revenue, £	Debt, £
1770 . . .	2,200,000	...
1786 . . .	3,300,000	...
1810 . . .	4,800,000	...
1828 . . .	6,400,000	152,000,000
1850 . . .	5,800,000	98,000,000
1879 . . .	9,400,000	80,500,000
1888 . . .	10,000,000	89,200,000

The sources of revenue were as follows :—

	1879	1888
	£	£
Customs	380,000	400,000
Excise	3,220,000	2,000,000
Property-tax	1,700,000	1,900,000
Post-office	420,000	450,000
Sundries	3,680,000	5,250,000
Total . .	9,400,000	10,000,000

The expenditure was as follows :—

	1879	1888
	£	£
Debt	2,400,000	3,100,000
Army	1,800,000	1,700,000
Navy	1,100,000	1,100,000
Government	4,600,000	5,500,000
Total . .	9,900,000	11,400,000

Holland had no public debt till its conquest by the French in 1793, but when Louis Bonaparte was made king in 1806 the debt was 83 millions sterling, and it rapidly rose to 152 millions. At present there is a set-off to the amount of 21 millions for State railways, so that the debt may be properly stated at 68 millions sterling. When Belgium separated from Holland in 1830 it caused a decline of revenue, as shown above. The revenue and expenditure since 1830 were approximately as follows :—

Period	Millions £		Annual Average, £	
	Revenue	Expenditure	Revenue	Expenditure
1831–50	94	94	4,700,000	4,700,000
1851–80	240	220	8,000,000	7,300,000
1881–88	76	85	9,500,000	10,600,000
Total	410	399	...	...

BELGIUM

When Belgium formed part of the kingdom of the Netherlands, her contribution to the national exchequer averaged, says Kolb, £3,500,000 per annum, or half the total revenue. On attaining her independence she took over £8,800,000 of the Dutch debt, involving an annual burden of £440,000. The revenue and debt at various dates show thus :—

Year	Revenue, £	Debt, £
1832 . . .	3,500,000	8,800,000
1850 . . .	4,700,000	25,100,000
1870 . . .	7,600,000	27,300,000
1878 . . .	10,200,000	42,000,000
1890 . . .	12,900,000	77,400,000

The revenue and expenditure have been approximately as follows :—

Period	Millions £		Annual Average, £	
	Revenue	Expenditure	Revenue	Expenditure
1831–50	82	98	4,100,000	4,900,000
1851–70	124	126	6,200,000	6,300,000
1871–87	186	236	11,000,000	14,000,000
Total	392	460	...	...

The revenue was made up as follows :—

	1835	1850	1870	1890
	£	£	£	£
Customs . .	300,000	500,000	900,000	1,100,000
Income-tax .	1,000,000	1,100,000	1,200,000	1,800,000
Railways .	...	600,000	1,700,000	4,200,000
Sundries . .	2,300,000	2,500,000	3,800,000	5,800,000
Total .	3,600,000	4,700,000	7,600,000	12,900,000

The items of expenditure were :—

	1835	1850	1870	1890
	£	£	£	£
Army . . .	1,600,000	1,000,000	2,400,000	1,800,000
Debt . . .	400,000	1,400,000	1,700,000	4,000,000
Government	1,400,000	2,200,000	3,600,000	7,000,000
Total .	3,400,000	4,600,000	7,700,000	12,800,000

There are 2000 miles of State railways, which cost 29 millions sterling, representing nearly 40 per cent. of the public debt.

SWITZERLAND

The *Almanac de Gotha* for 1810 puts the revenue at only £100,000 for that year. The *Repertoire Economique* puts it for 1822 at £800,000, whereas a statement published in 1850 makes it for the last-mentioned year only £500,000.

Official figures give us the following for later years:—

Year				Revenue, £	Debt, £
1868	.	.	.	1,700,000	200,000
1877	.	.	.	1,700,000	1,300,000
1889	.	.	.	2,400,000	1,200,000

The above debt is that of the Confederation, besides which the various Cantons have their own, which Kauffmann says amounted in 1876 to 16 millions sterling. The sources of Federal revenue were :—

				1877	1888
				£	£
Customs	.	.	.	650,000	1,200,000
Sundries	.	.	.	1,050,000	1,200,000
Total	.	.		1,700,000	2,400,000

The expenditure was as follows :—

				1877	1888
				£	£
Army	.	.	.	600,000	800,000
Government	.	.	.	1,100,000	1,600,000
Total	.	.		1,700,000	2,400,000

These tables do not include the Cantonal revenues or expenditure.

GREECE

The kingdom dates from 1832, but the finances for some years were obscure. The following shows approximately revenue and debt :—

Year				Revenue, £	Debt, £
1840	.	.	.	800,000	10,000,000
1879	.	.	.	1,600,000	19,400,000
1889	.	.	.	3,400,000	22,700,000

Revenue and expenditure were approximately as follows :—

Period	Millions £		Annual Average, £	
	Revenue	Expenditure	Revenue	Expenditure
1833–50	16	25	900,000	1,400,000
1851–70	24	30	1,200,000	1,500,000
1871–80	14	18	1,400,000	1,800,000
1881–87	18	22	2,600,000	3,100,000
55 years	72	95	1,300,000	1,700,000

The finances for 1887 showed as follows :—

	Revenue, £		Expenditure, £
Direct taxes .	900,000	Debt . .	1,500,000
Indirect taxes .	1,900,000	Army . .	600,000
Sundries . .	1,000,000	Government	1,700,000
Total .	3,800,000	Total .	3,800,000

The debt is mostly internal, and includes £3,200,000 of bank-notes.

ROUMANIA AND SERVIA

The finances of these two kingdoms in 1889 showed thus :—

				Roumania, £	Servia, £
Revenue—					
Customs	.	.	.	900,000	200,000
Excise	.	.	.	1,700,000	800,000
Taxes	.	.	.	3,600,000	800,000
Total	.			6,200,000	1,800,000
Expenditure—					
Debt	.	.	.	2,600,000	460,000
Army	.	.	.	1,400,000	640,000
Government	.	.	.	2,500,000	700,000
Total	.	.		6,500,000	1,800,000

The Roumanian debt is 36 millions sterling, that of Servia 13 millions, one-half of the amount in each case having its origin in State railways.

BULGARIA

Revenue, £2,900,000. A loan for £1,200,000 in 6 per cents. was effected at Vienna in January 1890. The estimates for 1890 are — Army, £1,200,000; debt, £250,000; public works, £400,000; government, £1,150,000, making a total of three millions sterling. Deficit, £100,000.

TURKEY

Revenue and debt are shown approximately thus :—

Year				Revenue, £	Debt, £
1810	.	.	.	3,000,000	...
1830	.	.	.	4,000,000	8,000,000
1854	.	.	.	9,000,000	12,000,000
1870	.	.	.	12,000,000	92,000,000
1878	.	.	.	15,000,000	245,000,000
1887	.	.	.	16,200,000	180,000,000

The debt has been reduced by compounding with the bond-holders. It now comprises 105 millions foreign consols, over 40 millions of internal debt, and 32 millions war indemnity due to Russia. Revenue and expenditure since 1851 were approximately as follows:—

Period	Millions £		Annual Average, £	
	Revenue	Expenditure	Revenue	Expenditure
1851–70	210	300	10,500,000	15,000,000
1871–80	140	240	14,000,000	24,000,000
1881–87	110	110	16,000,000	16,000,000
37 years	460	650	12,400,000	17,600,000

The Budget for 1889 showed—Revenue, £16,700,000; expenditure, £19,300,000. Since the composition of 1882 the bond-holders receive 1 per cent. annual interest. The taxes set apart for this purpose gave as follows in 1888:—

	£			£
Tobacco	680,000	Excise .	. .	200,000
Salt .	620,000	Sundries	. .	480,000

These taxes also provide a sinking-fund.

EGYPT

The finances may be approximately set down thus;—

Year	Revenue, £	Debt, £
1833 . . .	2,520,000	...
1863 . . .	6,000,000	3,300,000
1870 . . .	7,000,000	37,000,000
1878 . . .	7,400,000	85,000,000
1889 . . .	9,700,000	103,400,000

Revenue and expenditure were approximately as follows:—

Period	Millions £		Annual Average, £	
	Revenue	Expenditure	Revenue	Expenditure
1841–60	90	90	4,500,000	4,500,000
1861–70	65	100	6,500,000	10,000,000
1871–80	75	135	7,500,000	13,500,000
1881–88	68	68	8,500,000	8,500,000
48 years	298	393	6,200,000	8,200,000

Revenue and expenditure for 1889 showed as follows:—

Revenue, £		Expenditure, £	
Land-tax . . .	4,890,000	Debt charge . .	4,090,000
Customs . . .	1,030,000	Police	740,000
Railways . . .	1,300,000	Khedive . . .	270,000
Sundries . . .	2,375,000	Government . .	4,300,000
Total . .	9,595,000	Total . .	9,400,000

Debt.—Before 1860 there was no debt, although large sums had been expended in irrigation works. The debt reached 120 millions sterling in 1880, and was thus accounted for:—

	£	*Loss on*	£
Railways . . .	13,360,000	Goschen loans .	1,900,000
Suez Canal . .	6,770,000	Oppenheim do. .	18,900,000
Nile Canal . .	12,600,000	Bischoffsheim do.	2,100,000
Sugar-mills . .	6,100,000	Rothschild do. .	2,500,000
Alexandria harbour	2,540,000	Various do. . .	1,000,000
Bridges,schools,&c.	4,890,000	Ballet-dancers,&c.	47,340,000
Public works	46,260,000	Unproductive	73,740,000

The nine loans effected between 1862 and 1880 represented nominally £77,000,000, but produced only £50,589,000, the difference being lost in discounts and other unavoidable drawbacks.

UNITED STATES

Official returns for 100 years show as follows:—

Year	Revenue, £	Expenditure, £	Debt, £
1790 . .	900,000	600,000	15,700,000
1800 . .	2,200,000	2,200,000	17,200,000
1810 . .	1,900,000	1,800,000	11,000,000
1820 . .	3,500,000	3,800,000	19,000,000
1830 . .	5,100,000	3,100,000	9,000,000
1840 . .	4,100,000	5,000,000	1,100,000
1850 . .	9,200,000	8,600,000	13,200,000
1860 . .	11,600,000	13,100,000	13,500,000
1870 . .	71,500,000	53,700,000	485,000,000
1880 . .	69,200,000	55,000,000	399,000,000
1889 . .	80,600,000	68,600,000	221,000,000

The total revenue and expenditure of 100 years were:—

Period	Millions £ Sterling		Annual Average, £	
	Revenue	Expenditure	Revenue	Expenditure
1790–1809	40	31	2,000,000	1,550,000
1810–1829	85	82	4,250,000	4,100,000
1830–1849	115	112	5,750,000	5,600,000
1850–1859	123	120	12,300,000	12,000,000
1860–1869	370	713	37,000,000	71,300,000
1870–1879	596	517	59,600,000	51,700,000
1880–1889	757	545	75,700,000	54,500,000
100 years	2,086	2,120	20,860,000	21,200,000

If we compare revenue with population we find:—

Period								Shillings per Inhab.
1831–50 .	.	.	.	.	.	.	.	7
1851–60 .	.	.	.	.	.	.	.	8
1861–70 .	.	.	.	.	.	.	.	22
1871–80 .	.	.	.	.	.	.	.	26
1881–88 .	.	.	.	.	.	.	.	28

The sources of American revenue have been as follows:—

Period	Millions £ Sterling				Annual Average, £		
	Customs	Internal Revenue	Sundries	Total	Customs	Internal	Sundries
1790–1809	35	1	4	40	1,750,000	50,000	200,000
1810–29	73	3	9	85	3,650,000	150,000	450,000
1830–59	201	...	37	238	6,700,000	...	1,230,000
1860–69	165	183	22	370	16,500,000	18,300,000	2,200,000
1870–79	316	236	44	596	31,600,000	23,600,000	4,400,000
1880–89	426	266	65	757	42,600,000	26,600,000	6,500,000
100 years	1,216	689	181	2,086	12,160,000	6,890,000	1,810,000

The items of expenditure were as follows :—

Period	Millions £ Sterling					
	Government	Army and Navy	Indians	Pensions	Interest	Total
1790–1809 . .	6	12	...	...	13	31
1810–29 . . .	12	47	2	4	17	82
1830–49 . . .	25	68	8	8	3	112
1850–59 . . .	48	55	7	3	7	120
1860–69 . . .	57	527	5	17	107	713
1870–79 . . .	125	115	11	57	209	517
1880–89 . . .	151	117	14	136	127	545
100 years . . .	424	941	47	225	483	2,120

Debt.—There was hardly any (except local debts) previous to the war of 1861. It reached its maximum in August 1865, namely, 572 millions sterling (2756 million dollars), being £16 per inhabitant, and fell in 1889 to 221 millions sterling, or less than £4 per inhabitant. Debt and wealth compared thus :—

Year	Millions £ Sterling		Ratio of Debt
	Wealth	Debt	
1865 . . .	4,180	572	13.6 per cent.
1889 . . .	12,824	221	1.7 ,, ,,

AUSTRALIA

The aggregate revenue and debt of the seven colonies which form Australia are shown thus :—

Year	Revenue, £	Debt, £	Ratio per Inhabitant	
			Revenue, £	Debt, £
1825	72,000	...	0.8	...
1840	680,000	...	2.2	...
1850	930,000	...	2.0	...
1860	6,700,000	11,900,000	5.3	9.5
1870	11,600,000	36,200,000	5.8	18.1
1880	17,100,000	87,900,000	6.0	31.0
1888	27,600,000	166,500,000	7.5	45.0

The revenue of the several colonies in 1888 was made up thus :—

	Customs	Railways, &c.	Lands	Sundries	Total
	£	£	£	£	£
New South Wales	2,140,000	3,660,000	2,270,000	820,000	8,890,000
Victoria	2,350,000	3,230,000	660,000	1,370,000	7,610,000
Queensland	1,350,000	1,000,000	640,000	470,000	3,460,000
South Australia	530,000	1,170,000	320,000	470,000	2,490,000
West Australia	180,000	60,000	80,000	40,000	360,000
Tasmania	300,000	110,000	80,000	150,000	640,000
New Zealand	1,390,000	1,330,000	300,000	1,090,000	4,110,000
Total . . .	8,240,000	10,560,000	4,350,000	4,410,000	27,560,000

Debt.—In June 1889 it amounted to 171 millions sterling, having risen almost 160 millions since 1860. The money has been expended thus :—

		£
Railways		99,300,000
Waterworks		13,000,000
Immigration		5,500,000
Sundries		48,700,000
Total . .		166,500,000

The revenue and expenditure since 1850 may be summed up approximately as follows :—

Millions £

Period	Revenue	Expenditure
1851–60 . . .	38	50
1861–70 . . .	92	116
1871–80 . . .	147	199
1881–88 . . .	186	265
38 years . . .	463	630

The income and expenditure of the several colonies in the last eight years, 1881–88, were :—

	Millions £		
	Revenue	Expenditure	Surplus Expenditure
New South Wales .	60	89	29
Victoria . . .	50	64	14
Queensland . .	22	36	14
South Australia .	17	26	9
West Australia .	2	3	1
Tasmania . .	4	6	2
New Zealand . .	31	41	10
Total . .	186	265	79

The aggregate of customs revenue in the last eight years compares with trade and population as follows :—

	Customs	Trade, Millions £	Population	Ratio of Customs	
				Per cent. of Trade	Per Inhabitant Yearly
	£				£ s. d.
N. S. Wales	13,760,000	309	900,000	4.5	1 19 0
Victoria . .	16,050,000	269	950,000	5.8	2 2 0
Queensland	7,270,000	87	290,000	8.4	3 3 0
S. Australia	4,330,000	88	300,000	5.0	1 16 0
W. Australia	1,110,000	9	35,000	12.1	4 0 0
Tasmania .	2,220,000	24	130,000	9.3	2 3 0
New Zealand	11,160,000	113	590,000	9.8	2 8 0
Total .	55,900,000	899	3,195,000	6.2	2 4 0

The revenue of New South Wales in 1889 reached £9,100,000.

The railways in 1889 showed gross receipts £8,160,000, working expenses £5,110,000, leaving a net profit of £3,050,000, equal to 3 per cent. on cost of construction. The annual interest on debt is £7,000,000; hence the railways pay nearly half the annual charge on the country for debt. If we deduct the value of railways and waterworks, the public debt will be only 54 millions sterling, or 4 per cent. of the wealth of Australia, against 7½ per cent. in the United Kingdom.

The increase of public debt has been accompanied by an enormous increase of wealth, as we see by comparing the two items :—

| Year | Millions £ Sterling | | Ratio to Wealth |
	Wealth	Debt	
1860 . . .	180	12	6.6 per cent.
1870 . . .	320	36	11.2 ,,
1888 . . .	1,373	166	12.1 ,,

The wealth and debt of the several colonies in 1888 were as follows :—

| | Millions £ | | Debt Ratio |
	Wealth	Debt	
New South Wales .	483	44	9.1
Victoria . . .	370	35	9.5
Queensland . .	132	26	19.5
South Australia .	131	19	14.5
Western Australia .	13	1	7.7
Tasmania . . .	36	4	11.2
New Zealand . .	208	37	17.8
Total .	1,373	166	12.1

The increase of debt since 1870 has averaged in the aggregate 7 millions sterling per annum, that of wealth 58 millions. Debt is equal to six years of revenue, the same as in Canada.

The debt and annual charge in the several colonies in December 1889 stood as follows :—

	Debt, £	Interest, £	Debt per Inhab., £
New South Wales .	46,800,000	1,810,000	43
Victoria . .	37,400,000	1,520,000	34
Queensland .	25,800,000	1,035,000	65
South Australia .	20,500,000	820,000	63
New Zealand .	37,000,000	1,530,000	60
Tasmania .	5,300,000	210,000	36
Western Australia .	1,300,000	50,000	30
Total .	174,100,000	6,975,000	48

CANADA

Official returns show revenue and debt as follows :—

| Year | Amount, £ | | Per Inhabitant | |
	Revenue	Debt	Revenue, £	Debt, £
1840	500,000	1,200,000	0.3	0.7
1860	2,400,000	14,100,000	0.7	4.0
1870	3,600,000	16,700,000	1.0	4.6
1880	5,100,000	32,100,000	1.1	7.0
1889	7,760,000	49,200,000	1.5	9.9

The revenue and expenditure since 1840 may be approximately summed up as follows :—

| Period | Millions £ Sterling | | |
	Revenue	Expenditure	Surplus Expenditure
1841–60	30	43	13
1861–70	33	36	3
1871–80	49	64	15
1881–89	66	83	17
49 years	178	226	48

Customs revenue averages 60 per cent. of total revenue, and is about 12 per cent. as compared with the value of trade. Debt has been largely caused by expenditure for railways. If we compare it with an approximate of public wealth, the account stands thus :—

| Year | Millions £ Sterling | | Debt Ratio | Per Inhabitant | |
	Wealth	Debt		Wealth, £	Debt, £
1860	392	14	3.6	120	4.2
1888	980	49	5.0	196	9.9

The incidence of debt is less than £10 per inhabitant, against £48 in Australia ; but, compared with revenue, it is equal, being six times the revenue in both cases.

In 1889 the debt consisted of £39,000,000 due in London and £10,000,000 internal debt. When the Dominion was constituted in 1867 the total debt was £15,600,000 ; the subsequent increase of £33,600,000 was caused thus :—

		£
Pacific Railway		13,000,000
Other railways		8,300,000
Canals		6,800,000
Other public works . . .		5,500,000
Total .		33,600,000

The total cost of the Pacific Railway was £21,600,000. The annual interest on the public debt of Canada is £2,040,000.

INDIA

Revenue and debt according to official returns were :—

Year	Revenue, £	Debt, £
1810 . . .	15,600,000	31,900,000
1820 . . .	19,500,000	39,800,000
1830 . . .	19,600,000	36,400,000
1840 . . .	19,400,000	32,500,000
1850 . . .	27,600,000	53,900,000
1860 . . .	39,700,000	98,100,000
1870 . . .	50,900,000	108,200,000
1880 . . .	69,700,000	160,400,000
1890 . . .	82,900,000	191,900,000

Revenue and expenditure may be summed up approximately thus :—

| Period | Millions £ Sterling | |
	Revenue	Expenditure
1810–40	565	565
1841–60	572	638
1861–70	473	483
1871–80	564	616
1881–87	514	540
77 years	2,688	2,842

In the foregoing tables the rupee is taken at the official value of 2s. Revenue and expenditure in 1890 stood thus :—

	Revenue, £		Expenditure, £
Land-tax . .	23,400,000	Army . .	22,100,000
Railways . .	16,700,000	Railways .	18,700,000
Opium . . .	8,300,000	Post-office .	13,300,000
Salt-tax . . .	8,000,000	Roads . .	5,500,000
Post-office . .	2,300,000	Irrigation .	2,600,000
Irrigation . .	1,900,000	Debt . .	4,400,000
Sundries . .	22,300,000	Sundries .	16,200,000
Total .	82,900,000	Total .	82,800,000

SOUTH AFRICA

Revenue and debt were as follows :—

Year	Revenue, £	Debt, £
1840 . . .	200,000	...
1860 . . .	800,000	600,000
1870 . . .	950,000	1,400,000
1880 . . .	3,100,000	13,000,000
1887 . . .	4,000,000	26,500,000

Revenue and expenditure are approximately summed up thus :—

Period	Millions £	
	Revenue	Expenditure
1841–60	10	11
1861–70	9	10
1871–80	19	31
1881–87	27	40
47 years	65	92

WEST INDIES

Revenue and debt were as follows :—

Year	Revenue, £	Debt, £
1850 . . .	700,000	900,000
1860 . . .	1,000,000	1,000,000
1870 . . .	1,400,000	1,600,000
1880 . . .	1,900,000	1,800,000
1887 . . .	2,100,000	3,100,000

ARGENTINA

Official returns are to the following effect :—

Year	Revenue, £	Debt, £
1864 . . .	1,400,000	5,100,000
1870 . . .	3,000,000	10,100,000
1880 . . .	3,900,000	23,000,000
1888 . . .	5,440,000	46,500,000

Revenue and expenditure seem therefore to have been as follows :—

Period	Millions £ Sterling		
	Revenue	Expenditure	Surplus Expenditure
1864–70	15	20	5
1871–80 . . .	35	48	13
1881–88 . . .	38	62	24
25 years . . .	88	130	42

The Budgets for 1884 and 1889 compared as follows :—

	Revenue	
	1884	1889
	£	£
Import dues . . .	4,230,000	3,880,000
Railways	410,000	80,000
Stamps	420,000	350,000
Sundries . . .	1,440,000	1,130,000
Total . .	6,500,000	5,440,000

	Expenditure	
	1884	1889
	£	£
Exchequer . . .	2,720,000	2,470,000
Interior . . .	1,200,000	1,480,000
Army and navy . .	1,680,000	1,090,000
Schools, &c. . . .	900,000	960,000
Total . .	6,500,000	6,000,000

Interest on debt takes £2,400,000, or 40 per cent. of the total revenue.

The statement of debt omits inconvertible paper-money issued by Government banks, and Cedulas or mortgage debentures guaranteed by Government (see *Banks*). On the other hand, the Government claims to have assets worth 71 millions sterling, viz. :—

	£
Treasury department . . .	27,260,000
Interior	37,560,000
Schools	2,920,000
War and Marine	2,850,000
Sundries	220,000
Total .	70,810,000*

Real estate consisting of lands and public buildings stands for 41 millions, bank and railway shares and Treasury balances for 26 millions, and sundries four millions.

Each of the fourteen Argentine provinces, as well as the capital, Buenos Ayres, has its own revenue and debt, distinct from those of the Federal Government. Latest returns were as follows :—

Province	Revenue	Debt
	£	£
Capital . . .	1,500,000	2,400,000
Buenos Ayres . . .	2,400,000	17,400,000
Santa Fé . . .	600,000	9,400,000
Cordoba . . .	300,000	4,000,000
Entre Rios . . .	300,000	4,000,000
Corrientes . . .	160,000	1,100,000
Santiago . . .	80,000	1,100,000
Mendoza . . .	120,000	1,000,000
Salta . . .	80,000	1,000,000
Rioja . . .	40,000	1,000,000
Tucuman . . .	100,000	600,000
Catamarca . . .	40,000	600,000
San Luis . . .	60,000	600,000
San Juan . . .	50,000	400,000
Jujuy . . .	20,000	...
Total . .	5,850,000	44,600,000

The consolidated debt, federal and provincial, may be summed up thus :—

	Foreign	Home Debt		Total
	£	$	£	£
Federal .	25,800,000	207,300,000 =	20,700,000	46,500,000
Provincial .	38,700,000	44,100,000 =	4,400,000	43,100,000
Total .	64,500,000	251,400,000 =	25,100,000	89,600,000

If we add 20 millions sterling for 300 million dollars of forced issue, it makes the total debt 110 millions sterling, without counting 400 millions of Cedulas worth about 30 millions sterling (see *Banks*). Wealth and debt at various dates were approximately as follows :—

Year	Millions £ Sterling		Debt Ratio
	Wealth	Debt	
1857	74	2	2.7
1864	139	5	3.6
1884	375	43	11.4
1890	509	110	21.6

* This valuation does not merit confidence, since it magnifies certain items exceedingly. No impartial person would put the total at more than 10 or 12 millions sterling.

URUGUAY

Official records since 1831 show thus :—

Period	Millions £ Sterling		
	Revenue	Expenditure	Debt
1831–50 . . .	4	5	1
1851–60 . . .	4	7	4
1861–70 . . .	6	10	8
1871–80 . . .	13	16	11
1881–88 . . .	20	24	15
58 years . . .	47	62	15

The value of real estate and cattle in 1886 amounted to 282 million gold dollars, or 59 millions sterling. The total wealth of the Republic is approximately 100 millions. The debt is therefore 15 per cent. against 22 per cent. in Argentina.

BRAZIL

Official returns give as follows :—

Year	Revenue, £	Debt, £
1864	6,100,000	18,700,000
1874	11,200,000	72,100,000
1888	14,100,000	107,200,000

The finances since 1850 may be summed up approximately thus :—

Period	Millions £	
	Revenue	Expenditure
1851–60 . . .	45	50
1861–70 . . .	65	130
1871–80 . . .	115	135
1881–88 . . .	105	122
Total . .	330	437

The origin of the debt is shown thus :—

	£
Paraguayan war . . .	48,000,000
Railways . . .	29,000,000
Sundries . . .	30,200,000
Total . . .	107,200,000

MEXICO

Official returns give the following :—

Debt, 1889		Revenue		1889	
	£		£		£
Foreign	12,700,000	1870	2,800,000	Customs	3,000,000
Home	18,500,000	1880	3,400,000	Sundries	2,000,000
		1889	5,000,000		
Total	31,200,000			Total	5,000,000

CHINA

In 1889 the revenue was stated thus :—

	£
Land-tax	4,800,000
Customs	5,500,000
Salt-tax	2,300,000
Sundries	6,400,000
Total . . .	19,000,000

JAPAN

The revenue in 1889 was £13,400,000, and the debt stood thus :—

	£
Funded	41,100,000
Forced currency . . .	9,000,000
Total . . .	50,100,000

FINES

The following were in force in the Middle Ages in France and England :—

Offence	£	s	d
Drawing a knife to any one . .	0	10	0
Wounding a person . . .	2	0	0
Calling a woman a prostitute .	2	0	0

FIRE

The *Journal des Economistes* (1883) published the following table of property annually destroyed by fire, except the countries in italics, the figures for which are doubtful :—

	£		£
United Kingdom	9,100,000	Spain	500,000
France	3,200,000	*Holland* . . .	400,000
Germany . . .	6,100,000	Belgium . . .	500,000
Russia	21,000,000	Scandinavia . .	1,000,000
Austria	3,500,000	United States .	22,500,000
Italy	1,000,000	Canada . . .	4,100,000

The total reaches 73 millions sterling. In twelve years ending 1883 the average for Austria proper was £1,800,000 per annum, exclusive of Hungary.

Losses in the principal cities are shown thus :—

	Number of Fires	Number per 100,000 Inhabs.	Loss, £	Per Inhabitant, Pence
London . .	2,338	56	1,100,000	66
Paris	...	...	270,000	34
New York . .	1,783	144	780,000	150
Manchester .	328	59	120,000	55
San Francisco .	...	...	112,000	122
Philadelphia .	655	76	460,000	130
Chicago . . .	490	98	360,000	180
Boston . . .	389	117	130,000	95
Baltimore . .	172	52	70,000	55
Cincinnati . .	213	85	144,000	144
St. Louis . .	197	49	160,000	98
Vienna . . .	365	36	100,000	24

The record of London fires since 1840 has been as follows :—

Years	Annual Average		
	Number of Fires	Houses to a Fire	Inhabitants to a Fire
1840–49 . . .	768	362	2,731
1850–59 . . .	977	331	2,570
1860–69 . . .	1,430	288	2,390
1870–80 . . .	1,795	264	2,150
1881–89 . . .	2,160	260	1,780

Fires on Saturday are 5 per cent. more numerous than on any other day in London ; but in Paris Friday has 20 per cent. over the average.

FRANCE

Official returns for the whole of France show thus :—

Years	Annual Average		
	Number of Fires	Houses to a Fire	Inhabitants to a Fire
1845–50 . . .	8,260	873	4,120
1851–60 . . .	10,556	715	3,435
1861–70 . . .	13,865	562	2,720

RUSSIA

The number of houses burnt yearly from 1860 to 1864 was only 10,600, representing a value of barely two millions sterling. Police estimates seem to have a cipher too much.

UNITED STATES.

Down to 1880 the annual losses from fire averaged only 17 millions sterling. Possibly the figure given above includes Canada, a large portion of Canadian property being insured at New York. The *Chronicle* (N.Y.) gives the losses in United States as follows :—

Period	£ Sterling per Annum
1875–80	14,800,000
1881–85	19,900,000

This was only 1 per cent. of the property insured, which exceeded 2100 millions sterling, or one-fifth of the total wealth of the United States.

Loss of Life.—The following table shows the deaths by fire per million inhabitants in various cities :—

Munich. . . . 4	Naples 41
Glasgow . . . 17	Hanover . . . 57
Berlin 20	Cologne . . 71
Paris 24	London . . . 83

The loss of life in England and Wales from fire averages 1490 persons yearly, of whom 42 per cent. are males and 58 per cent. females. The London firemen save 110 lives yearly. Three persons in England per 1000 die by fire.

Remarkable Fires.—The worst recorded in history have been :—

Year	Place	Loss
1570 .	Moscow .	200,000 victims
1666 .	London .	13,200 houses
1812 .	Moscow .	15,500 houses
1824 .	Cairo .	4000 victims
1831 .	Constantinople .	18,000 houses
1835 .	New York .	£6,000,000
1842 .	Hamburg .	£7,200,000
1851 .	San Francisco .	2500 blocks
1863 .	Santiago .	1800 victims
1871 .	Chicago .	£33,000,000
1872 .	Boston .	£15,000,000

See also *Theatres*, in which some fires caused great loss of life.

Fire-Brigades.—The first in London was established in 1791. The various brigades in 1882 stood thus :—

	Fire-Engines	Fire-men	Cost of Brigade	Firemen per 100,000 Inhabitants	Cost of Brigade, Pence per Inhab.
London . .	38	536	£80,000	13	5
Paris . .	203	1,500	98,000	68	11
St. Petersburg	37	1,150	....	127	....
Hamburg . .	53	790	....	305	....
New York. .	38	690	250,000	55	48
Philadelphia .	27	404	103,000	49	29
Chicago . .	27	200	94,000	40	48
Boston . .	26	472	110,000	138	79
Cincinnati . .	18	155	62,000	62	64
St. Louis . .	17	100	40,000	26	24
Baltimore . .	18	140	40,000	43	30
San Francisco	14	200	....	82	....
Berlin . . .	50	1,090	....	96	....
Lyons . .	48	475	....	98	....

The expenditure on fire-brigades compared with the number of fires shows the following average per fire :—

	£		£		£
London . .	40	Philadelphia .	153	Baltimore .	230
Sydney . .	88	Chicago . .	188	Boston . .	280
New York .	138	St. Louis . .	201	Cincinnati .	295

The London fire-brigade uses 17 million gallons water yearly, that is, 4½ gallons per inhabitant, or 8500 gallons for each fire. The New York brigade consumes 32 million gallons, that is, 25 gallons per inhabitant, or 18,000 gallons per fire.

FISH

Anchovy.—The fishermen of Finisterre, France, take 700 tons yearly, value £10,000.

Cod.—The average take is as follows :—

	Million Fish	Tons	Value, £
Great Britain . .	8	13,000	200,000
France	21	34,000	340,000
Norway . . .	65	110,000	1,050,000
Canada . . .	28	45,000	520,000
Total . .	122	202,000	2,110,000

The production of cod-liver oil averages 900,000 gallons yearly, chiefly in Norway and Canada, 100 livers yielding one gallon of oil.

Herring

	Fishers	Tons Herrings	Value, £
Scotch		140,000	1,700,000
English		80,000	950,000
Irish		20,000	240,000
French		42,000	550,000
Norwegian . . .		60,000	700,000
Canadian . . .		48,000	600,000
Total . .		390,000	4,740,000

About 10,000 herrings go to a ton, a British barrel containing 1000, a Norwegian 500 fish. The number of men engaged in herring-fishing is 180,000, who catch on an average 22,000 fish each.

Mussels.—In 1850 there were 300 mussel-beds, and now there are 3000, in the Bay of Aguillon, France, extending seven miles along the shore. The industry was introduced by an Irish settler, and these beds produce annually 350,000 bushels, valued at £55,000.

Oysters.—The ordinary production and consumption are :—

	Per Annum			
	Product, Millions		Consumption, Millions	Per Inhabitant
U. Kingdom	29	London .	500	120
France . .	300	Paris . .	57	26
United States	3,500	New York .	810	660
Portugal . .	600	France .	260	7
Total .	4,429		...	...

Baltimore packs seven million bushels per annum. An oyster three months old is the size of a shilling, six months half-a-crown, but is not fit to eat before four years old. The oyster-beds established by advice of Abbé Bonnetard in France produced 97 million oysters in 1881. According to Mayhew, the consumption in London in 1864 was 310,000 barrels, containing 496 million oysters, being 1600 to the barrel, and representing a value of £2,100,000 ; this, however, seems a retail value, as they were valued the same year in France at £2 per thousand, which would be only one million sterling. The American oyster-fishing is valued at five millions sterling per annum, that of Canada (60,000 barrels) at £40,000 yearly.

Pilchards.—The Cornishmen take 150 millions yearly ; exportation, 12,000 hogsheads.

Salmon.—The annual fishery in the United Kingdom is as follows :—

				Tons	Value, £
England	.	.	.	360	40,000
Scotland	.	.	.	2,600	280,000
Ireland	.	.	.	2,900	320,000
		Total	.	5,860	640,000

London consumes nearly one-third, namely, 1840 tons yearly. England imports 50 tons per annum from Norway. Salmon have been caught in the Tay weighing 70 lbs., but the average weight of this fish is only 8 lbs. The exportation of tinned salmon from California exceeds 10 million lbs. yearly, of which one-half goes to England, one-fourth to the Continent, and the rest to New York, &c. The quantity has doubled since 1875. This is irrespective of six million lbs. annually consumed in California. There is a royal salmon-fishery at Ulea, in Finland, where 60,000 are taken yearly. The largest salmon caught in the United Kingdom in 1889 was one of 61 lbs., in the Severn. The fishermen of Colombia River, Canada, exported 415,000 cases of tinned salmon to England in 1889, containing 21,000,000 tins. The total consumption of British and imported salmon in London in 1883 was 5000 tons, or nearly 3 lbs. per inhabitant.

Sardines

				Annual Fishery	
				Million Fish	Tons Weight
Spain	.	.	.	1,260	52,000
France	.	.	.	980	41,000

The exportation from France averages 450 millions per annum, say 20,000 tons.

Seals

Fishery				Annual Slaughter	Tons Oil
Canadian	.	.	.	460,000	9,200
Norwegian	.	.	.	80,000	1,600
Falkland Islands	.	.	.	5,000	100
Montevideo	.	.	.	5,000	100
		Total	.	550,000	11,000

The skins vary in value; the oil fetches £25 per ton. One fishing vessel sometimes kills as many as 50,000 in a season off Nova Scotia. The practice of slaughtering seals while suckling their young threatens to exterminate the breed. In 1889 the British seal-fishers of British Colombia killed 28,000, the American 7000, and the skins were valued at 35s. each.

FISHERIES

UNITED KINGDOM

The Report for 1888 gave the following :—

					Tons Fish	Value, £
England	.	.	.	.	317,000	4,210,000
Scotland	.	.	.	.	238,000	1,690,000
Ireland	.	.	.	.	20,000	510,000
			Total	.	575,000	6,410,000

The above would seem to be the value of the fish when first caught. Some estimates place the value much higher: hence apparent discrepancies on this point.

According to a previous statement, the strength of the fishing marine and the take of herrings were :—

				Vessels	Men	Barrels Herrings
English	.	.	.	14,420	44,200	845,000
Scotch	.	.	.	14,650	47,100	1,580,000
Irish	.	.	.	5,830	21,300	210,000
		Total	.	34,900	112,600	2,635,000

The above vessels take other fish besides herrings, but the latter form 70 per cent. of the total value of our sea-fishing. Including fresh-water fish, the value in 1885 was estimated at £5,100,000, viz.:—

Kind					Tons	Value, £
Salmon	.	.	.	.	3,600	390,000
Cod	.	.	.	.	13,000	200,000
Whale	.	.	.	.	...	700,000
Herrings	.	.	.	.	260,000	2,900,000
Pilchards	.	.	.	.	3,000	30,000
Lobsters, &c.	.	.	.	.	...	900,000
		Total	.	.	...	5,120,000

The take of salmon is 45 per cent. Scotch, 50 per cent. Irish, and 6 per cent. English. A barrel of herrings contains 1000; of pilchards, 3000 fish. About half of the herrings and two-thirds of the pilchards are exported.

The railways in 1887 carried 341,000 tons of fish, against 278,000 in 1882, viz.:—

					1882	1887
England	.	.	.	.	215,000	250,000
Scotland	.	.	.	.	57,000	84,000
Ireland	.	.	.	.	6,000	7,000
		Total	.	.	278,000	341,000

The value of fish taken in England and Wales in 1888 was :—

Kind				Tons	Value, £	Value per Ton, £
Turbot	.	.	.	2,700	170,000	63
Sole	.	.	.	3,600	380,000	106
Haddock	.	.	.	77,000	600,000	8
Herrings	.	.	.	86,000	490,000	6
Cod	.	.	.	12,000	160,000	13
Mackerel	.	.	.	16,000	250,000	15
Pilchards	.	.	.	8,000	40,000	5
Plaice	.	.	.	35,000	610,000	18
Salmon	.	.	.	360	40,000	110
Various	.	.	.	76,340	1,200,000	16
		Total	.	317,000	3,940,000	12
Oysters (million)	.	.	.	29	100,000	...
Lobsters, &c. (million)	.	.	.	5½	170,000	...
		Total	.	...	4,210,000	...

In 1888 there were 298 fishermen drowned at sea, equal to 9 per 1000 of those constantly engaged in English and Welsh waters in fishing, or 6 per 1000 if casuals be included. In that year London took 180,000 tons, or nearly 60 per cent. of all fish caught in England, equal to 100 lbs. of fish per inhabitant for yearly consumption. The Scotch fisheries have multi-

plied fourteen-fold since the time of the Napoleon wars, viz. :—

1805-10.—Cured . . 90,000 barrels fish per annum
1881–83.—Cured . 1,250,000   ,,   ,,

The imports and exports of fish at various dates were :—

Year	Imports		Exports	
	Tons	Value, £	Tons	Value, £
1853 . . .	10 000	170,000	43,000	450,000
1860 . . .	22,000	370,000	42,000	580,000
1870 . . .	38,000	770,000	75,000	910,000
1880 . . .	67,000	1,670,000	134,000	1,780,000
1888 . . .	95,000	2,320,000	136,000	1,570,000

The quantities exported can only be given approximately, the weight only of herrings, the value of other kinds being stated in the Customs. Herrings are about three-fourths of the total of fish exports.

FRANCE

The product in 1880 was as follows :—

Kind	Tons	Value, £
Cod	34,000	310,000
Herring and mackerel	48,000	680,000
Sardines . . .	38,000	1,650,000
Various . . .	10,000	840,000
Total . .	130,000	3,480,000

The difference between deep-sea and coast fishing was as follows :—

	Deep-Sea	Coast	Total
Men . . .	13,000	72,000	85,000
Tons, fish . .	34,000	96,000	130,000
Value, £ .	350,000	3,130,000	3,480,000

Being an average of £26 per deep-sea, and £44 per coast fisherman.

The following report was published in 1886 :—

Class	1874		1885	
	Fishermen	Tons Fish	Fishermen	Tons Fish
Cod . . .	11,700	31,000	12,300	40,000
Various . .	101,300	71,000	131,700	113,000
Total . .	113,000	102,000	144,000	153,000

The take of oysters and sardines was as follows :—

Year	Oysters, Million	Sardines, Million
1874	52	... 611
1885	127	... 494

The French oyster-beds showed the following product :—

Year	Millions					
	Arcachon	Rochefort	Auray	Granville	Cancale	Total
1862 . . .	8	1	...	13	18	40
1868 . . .	8	3	3	0	1	15
1872 . . .	10	1	7	1	4	23
1874 . . .	42	2	10	1	9	64
1876 . . .	197	30	22	1	9	259

The Cancale beds produced 70 millions in 1843, the Granville 46 millions in 1857. The total French product was valued at £34,000 in 1869, at £74,000 in 1874.

The value of all fish taken in 1885 was £3,700,000, against £2,900,000 in 1874. The exportation of sardines was as follows :—

Year	Tons	Million Fish
1880	10,300	260
1889	12,400	310

In 1888 France exported 19,000 tons of dried codfish; the fish bounty paid that year by Government was £160,000 sterling. Nevertheless, the deep-sea fishery is not progressing; the returns of sixty years ago (1830) showed 441 vessels of 67,000 tons burthen, manned by 12,100 fishermen, the same number as at present.

HOLLAND

Such was the importance of Dutch fisheries 300 years ago, that Amsterdam was said to be built of herring-bones. In the sixteenth century the Dutch had 1500 vessels in the Shetland herring-fisheries, and 260 Arctic whalers, manned by 14,000 seamen. Injudicious restrictions and heavy taxes brought down this industry, till, in 1854, Holland had only 80 busses.

The returns of herring-fishery in recent years show thus :—

Year	Busses			Value Taken, £		
	Deep-Sea	Coast	Total	Deep-Sea	Coast	Total
1874 . .	114	218	332	110,000	40,000	150,000
1880 . .	133	284	417	150,000	60,000	210,000
1882 . .	145	261	416	190,000	80,000	270,000

Deep-sea fishing showed annual averages as follows :—

Period	Busses	Tons Fish	Value, £
1858–67 . .	86	4,000	50,000
1868–77 . .	110	7,200	100,000
1878–82 . .	134	15,000	150,000

Coast-fishing was as follows :—

Year	Busses	Barrels Fish	Value, £
1874 . .	218	27,600	35,000
1880 . .	284	56,700	60,000
1882 . .	261	51,100	80,000

The oyster-fishery produced as follows :—

Year	Number	Tons
1876	36,600	2,900
1880	16,500	1,200
1882	15,600	1,100

It appears that 14,000 oysters go to a ton. The consumption was as follows :—

	Tons
Holland	154
Germany	346
England, &c.	600
Total . . .	1,100

RUSSIA

In 1800 Hermann valued the fisheries at £1,500,000 per annum. In 1880 the take was estimated at 220,000 tons, worth £2,200,000.

SWEDEN

In 1800 the annual take was 600 million fish, or 600,000 barrels, of which three-fourths were consumed at home. The exports have been as follows :—

Year	Tons	Value, £
1800	15,000	150,000
1830	30,000	300,000
1886	25,000	280,000

In 1880 there were 29,000 fishermen; the annual take would probably exceed 60,000 tons.

NORWAY

In 1883 the returns showed as follows :—

Class	Fishermen	Fish, Millions	Value, £
Cod . . .	58,000	65	920,000
Herring. . .	53,000	410	640,000
Total .	111,000	475	1,560,000

Besides the above, the Norwegians take 350 whales, 80,000 seals, and in fresh waters a quantity of salmon.

UNITED STATES

In 1880 there were 131,400 fishermen, with 51,400 boats of all sizes, and the annual take was valued at £8,610,000.

CANADA

According to a statement in 1883 we find :—

Fish		*Value, £*
Cod, tons . . .	45,000	520,000
Herring, tons . .	48,000	580,000
Seals, number . .	460,000	280,000
Whales, &c. . .	...	1,070,000
Total . .		2,450,000

In 1889 there were 31,600 vessels, manned by 59,800 fishermen, whose take was valued at £3,800,000 yearly.

The fisheries of the principal nations may be summed up thus, approximately :—

	Vessels	Men	Tons Fish	Value, £	Value per Man,£
England .	14,400	47,300	320,000	4,200,000	95
Scotland .	14,600	50,000	240,000	1,700,000	34
Ireland . .	5,800	21,800	25,000	500,000	23
U. Kingdom	34,800	129,100	585,000	6,400,000	50
France . .	23,900	144,000	153,000	3,700,000	26
Germany .	8,100	17,000	40,000	400,000	24
Russia . .	13,500	68,000	220,000	2,200,000	32
Austria . .	2,800	7,000	15,000	150,000	22
Italy . . .	18,200	61,000	100,000	1,000,000	17
Spain . .	10,200	38,000	50,000	500,000	13
Sweden .	7,000	29,000	60,000	600,000	21
Norway .	31,600	111,000	160,000	1,600,000	15
Holland .	500	8,000	20,000	270,000	34
Europe .	150,600	612,100	1,403,000	16,820,000	27
U. States .	51,400	131,400	600,000	8,600,000	65
Canada . .	31,600	59,800	300,000	3,800,000	63
Total .	233,600	803,300	2,303,000	29,220,000	36

FLAX AND LINEN.

Flax-growing received an abnormal impulse by the American War of 1861-64 and ensuing cotton-famine, but has been on the decline in most countries, except Russia, during the last ten years. The production in the United Kingdom was as follows :—

Year	Tons	Value of Crop, £
1830	15,500	1,240,000
1850	21,000	760,000
1870	32,500	1,700,000
1888	20,000	680,000

Neumann-Spallart's table for 1885 and some later figures show flax-growing as follows :—

	Acres	Tons Flax	Lbs. per Acre
United Kingdom . .	116,000	21,000	400
France	109,000	28,000	570
Germany . . .	270,000	44,000	365
Russia	3,000,000	330,000	240
Austria	240,000	47,000	440
Italy	170,000	20,000	265
Belgium	98,000	21,000	470
Holland	38,000	8,000	460
Sweden	28,000	3,000	230
Other countries * . .	46,000	4,000	200
United States . .	400,000	42,000	230
Total . . .	4,515,000	568,000	320

Linen Manufacture.—The latest information may be summed up thus, the consumption of flax and value of product being given approximately :—

	Number of Spindles	Power-Looms	Tons Flax Consumed	Value of Manufacture
				£
U. Kingdom	1,160,000	47,600	85,000	8,500,000
France . .	500,000	23,000	90,000	9,000,000
Germany .	318,000	8,000	64,000	7,000,000
Russia . .	150,000	2,500	120,000	9,000,000
Austria . .	399,000	500	57,000	5,700,000
Italy . . .	59,000	800	27,000	2,700,000
Spain . .	...	1,000	10,000	1,000,000
Sweden . .	4,000	100	3,000	300,000
Holland . .	8,000	1,200	5,000	500,000
Belgium . .	289,000	4,800	50,000	5,000,000
Switzerland.	9,000	...	3,000	300,000
U. States .	13,000	7,000	42,000	4,200,000
Total . .	2,909,000	96,500	556,000	53,200,000

UNITED KINGDOM.

The production of linen from 1700 to 1830 was recorded for the purpose of bounties; since the latter year it is estimated according to the consumption of flax. The production in the three kingdoms was approximately as follows :—

	Millions of Yards per Annum			
Period	England	Scotland	Ireland †	Total
1701-50 . .	...	5	8	13
1751-99. . .	8	14	31	53
1800-10. . .	15	25	46	86
1811-20. . .	20	33	60	113
1821-30. . .	24	60	90	174
1831-40. . .	35	90	125	250
1841-50. . .	50	100	160	310
1851-60. . .	50	100	150	300
1861-70. . .	50	110	190	350
1871-80. . .	50	100	150	300
1881-90. . .	45	95	140	280

* New Zealand exports yearly 1500 tons of a fibre which yields 17 per cent. flax.
† The production and export of Irish linen in the 18th century were approximately as follows :—

Year	Yards Made	Yards Exported	Home Use
1710 . . .	4,500,000	2,000,000	2,500,000
1740 . . .	12,000,000	7,000,000	5,000,000
1800 . . .	44,000,000	36,000,000	8,000,000

The following table shows the consumption of flax and the domestic and foreign trade in linen since 1806 :—

Year	Flax, Tons	Millions of Yards Linen			Export Yarn, Million Lbs.	Value of Manufacture, £
		Made	Exported	Home Use		
1806	22,000	86	40	46	...	3,800,000
1820	40,000	145	50	95	...	5,800,000
1830	62,000	223	62	161	...	7,600,000
1840	94,000	290	87	203	16	10,800,000
1850	110,000	340	105	235	18	12,600,000
1860	102,000	270	144	126	31	11,400,000
1870	130,000	360	226	134	37	13,500,000
1881	102,000	310	174	136	18	11,700,000
1888	85,000	260	177	83	15	8,500,000

The total value represented by the linen industry since 1821 is approximately as follows :—

Period	Millions £ Sterling			
	Home Use	Exported Linens	Exported Yarn	Total
1821–30 . .	52	21	...	73
1831–40 . .	60	25	3	88
1841–50 . .	63	34	6	103
1851–60 . .	56	44	13	113
1861–70 . .	52	71	24	147
1871–80 . .	50	66	16	132
1881–88 . .	36	44	8	88
68 years . .	369	305	70	744

The following table shows approximately the output of linen in English statute miles, the amount paid for flax in 68 years, and the product of this industry :—

Period	Miles of Linen	Amount in Millions £			Price of Linen per Mile, £
		Flax	Manufactures	Net Product	
1821–30	990,000	41	73	32	70
1831–40	1,420,000	58	88	30	60
1841–50	1,760,000	54	103	49	55
1851–60	1,700,000	46	113	67	52
1861–70	2,000,000	59	147	88	60
1871–80	1,700,000	56	132	76	55
1881–88	1,300,000	29	88	59	45
68 years	10,870,000	343	744	401	55

The factory statistics of this industry are as follows :—

Year	Factories	Operatives	Spindles
1840 . .	392	43,000	...
1870 . .	502	125,000	1,480,000
1885 . .	388	112,000	1,160,000

In 1879 the industry stood thus :—

	No. of Factories	Spindles	Power-Looms	Operatives
England . .	101	191,000	4,100	15,000
Scotland . .	155	265,000	16,800	37,000
Ireland . . .	144	809,000	19,600	56,000
U. Kingdom .	400	1,265,000	40,500	108,000

FRANCE

In 1839 the linen manufactures were estimated by Berghus at £10,400,000, which would be equivalent to 280 million yards, and indicate a consumption of 70,000 tons of flax. They were valued by Tolosan in the previous century, 1788, at about five millions sterling. France consumes three times as much flax as she produces, the import of this fibre showing thus :—

Year	Tons
1872	56,000
1880	67,000
1887	60,000

In this branch of manufacture she is ahead of the United Kingdom, and turns out about 360 million yards per annum. In five years ending 1888 France exported £3,200,000 of linens yearly.

GERMANY

In 1805 Oddy valued the linen manufactures of Prussia at £1,800,000 ; and in 1843 the value had risen to £2,800,000. At the latter date Prussia stood for three-fourths of the linen manufactures of the Zollverein.

Germany in 1838 counted 13,000 spindles and 283,000 looms, showing an increase of 30 per cent. since 1822, but it was not until after the land-reform of 1848 and the introduction of railways that this industry notably expanded. In 1855 there were 74,000 flax-spindles, and 189,000 in 1865.

The home production of flax is 44,000 tons.

The net imports are as follows :—

Year	Tons
1873	24,000
1880	13,000
1887	20,000

The consumption, therefore, seems to average 64,000 tons yearly, which is equivalent to a make of 260 million yards of linen.

RUSSIA

In 1828 there were 214 linen-factories, which turned out 20 million yards, valued at £800,000 ; this was exclusive of Poland, which made two million yards yearly. In 1864 there were 599 factories, with 44,000 operatives, the production being estimated by Bushen at £5,300,000.

According to Mr. Spallart and the official report, an enormous increase took place recently in flax-growing, the area under this crop reaching 3,785,000 acres, and being supposed to yield 400,000 tons of flax ; a pure delusion, for we see that the exports of flax have diminished. The area under flax in 1872 was 2,250,000 acres, the crop 242,000 tons ; the real figures are probably still the same. During ten years ending 1887 Russia imported linen manufactures worth £400,000 a year. The exports of flax were :—

Period	Tons Yearly
1861–63	65,000
1870–71	162,000
1885–87	140,000

AUSTRIA

An official return published in 1828 showed that the production of linen since 1824 averaged 92 million yards per annum. In 1840 there were 869 factories, with

280,000 hands. Most of the industry is situate in Bohemia, where it has flourished since the fourteenth century.

The production of flax averages 5000 tons in Hungary, 8000 in Bohemia, and amounts altogether to 47,000 tons, besides which the Empire imports 10,000 tons. The factories may, therefore, be estimated to produce 230 million yards linen per annum. In ten years ending 1887 Austria exported £600,000 per annum of linen goods.

ITALY

The official report of 1877 showed linen-factories with an aggregate of 13,000 operatives, and 59,000 spindles worked by 3000 horse-power, of which 2500 water and 500 steam. About 20,000 tons of flax are grown, and linen yarn is imported, the imports showing thus :—

Period						Tons Yarn Yearly
1862–64	.	.	.	.	.	3000
1872–73	.	.	.	.	.	4000
1885–87	.	.	.	.	.	6600

The actual product of linen is about 120 million yards yearly.

SPAIN

A statement published about 1870 gives the linen-factories a total of 6000 operatives and 5000 looms, the annual product being valued at £1,100,000 sterling. This indicates a consumption of 10,000 tons flax and an output of 40 million yards. At that time the average importation of flax and linen yarn was 5000 tons yearly, from which it would appear that Spain produces 5000 tons of her own.

The import of linen yarn yearly was as follows :—

Period						Tons
1863–66	.	.	.	.	.	7500
1873–76	.	.	.	.	.	5500
1883–87	.	.	.	.	.	3800

This shows a very steady decline of the industry, notwithstanding the enormous import dues on foreign linen goods. In ten years ending 1887 the import of linens averaged £400,000 yearly.

BELGIUM

The industry has been almost stationary for 50 years. Thus in 1835 there were 101,000 acres under flax, producing 21,000 tons, and the factories turned out 90 million yards linen, valued at four millions sterling. At present the flax area is 98,000 acres, and the mills turn out about 120 million yards linen. The output has always been, as in the United Kingdom, largely in excess of the requirements for home consumption. The export of linen fabrics and yarn has been :—

Period					Annual Average, £
1860–62	.	.	.	.	1,700,000
1870–72	.	.	.	.	2,600.000
1885–87	.	.	.	.	4,100,000

This includes 13,000 tons of linen yarn. Belgium imports about 30,000 tons of flax, the mills consuming altogether about 50,000 tons. In ten years ending 1887 the export of linens averaged £800,000 yearly.

UNITED STATES

The industry is of no magnitude, counting only 13,000 spindles and 7000 looms, which appear to consume native flax only, the crop being estimated at 42,000 tons. The Americans, meantime, consume imported linens largely, the value averaging thus :—

Period						£
1841–43	.	.	.	.	.	800,000
1861–63	.	.	.	.	.	1,400,000
1871–73	.	.	.	.	.	3,800,000
1881–83	.	.	.	.	.	3,700,000

The consumption of linen is about 300 million yards, of which one-half is made in the country.

APPROXIMATE PRODUCTION OF LINEN

	Million Yards			Million Yards
United Kingdom	300	Spain	. .	40
France	320	Sweden	. .	10
Germany	260	Holland	. .	20
Russia	360	Belgium	. .	120
Austria	230	United States	.	160
Italy	120	Switzerland	.	10

The whole makes up nearly 2000 million yards, worth about 50 millions sterling.

FLOODS

Date			Place			Loss
1642	.	.	China	.	.	300,000 lives
1646	.	.	Holland	.	.	110,000 lives
1875	.	.	Toulouse	.	.	£15,000,000
1876	.	.	Bengal	.	.	200,000 lives
1879	.	.	Zegedin	.	.	£8,500,000
1883	.	.	Rhine Valley	.	.	£6,000,000

In the last-mentioned the area of country under water was 260 square miles, equal to the extent of the Lake of Constance.

FODDER

In feeding animals it is found that 10 lbs. hay are equivalent to :—

	Lbs.		Lbs.		Lbs.
Oil-cake	3	Wheat	6	Mangel-wurzel	33
Beans	4	Potatoes	22	Straw	45
Oats	5	Cabbage	25	Turnips	47
Maize	6	Carrots	30	Clover	50

A horse will eat in a year nine times his own weight, a cow nine times, an ox six times, a sheep six times.

FOOD

The food supply of the civilised nations, that is, Europe, United States, British Colonies, &c., has increased (except as regards meat) during the nineteenth century much faster than population, which shows that the material welfare of mankind has advanced in its most important particular.

The following table shows approximately the quantities of food produced and the population subsisting thereon :—

Period						Tons Produced Yearly				Population
						Grain	Meat	Sugar	Coffee and Tea	
1831–40	.	.	.	.	.	101,000,000	8,700,000	530,000	210,000	251,000,000
1851–60	.	.	.	.	.	139,000,000	10,490,000	1,100,000	390,000	300,000,000
1875–84	.	.	.	.	.	204,000,000	13,260,000	3,670,000	745,000	370,000,000
1888	.	.	.	.	.	241,000,000	14,430,000	5,260,000	920,000	404,000,000

In the above table grain includes what is used both for man and beast. The averages per head of population were :—

Period	Lbs. per Inhabitant			
	Grain	Meat	Sugar	Coffee and Tea
1831–40	900	79	5	2
1851–60	1,040	79	8	3
1874–84	1,240	72	22	4½
1887	1,330	79	29	5

The production of wheat, as shown already when treating of Agriculture, has averaged as follows :—

Period	Tons Yearly			
	Europe	United States	Colonies, &c.	Total
1831–40	17,800,000	1,950,000	2,900,000	22,650,000
1851–60	21,420,000	3,430,000	5,120,000	29,970,000
1871–80	28,150,000	8,450,000	8,250,000	44,850,000
1881–87	30,770,000	11,000,000	11,230,000	53,000,000
1888	32,400,000	10,370,000	14,050,000	56,820,000

In the period ending 1840 Europe produced 80 per cent. of the wheat of the world, as compared with 56 per cent. at present. In the interval the production in the United States and in the Colonies has quintupled.

The production of other grain during the same period was approximately as follows :—

Period	Tons Yearly			
	Europe	United States	Colonies, &c.	Total
1831–40	62,500,000	11,550,000	4,300,000	78,350,000
1851–60	79,730,000	22,920,000	6,380,000	109,030,000
1871–80	86,850,000	49,500,000	7,150,000	143,500,000
1881–87	101,230,000	56,500,000	10,270,000	168,000,000
1888	105,800,000	68,710,000	9,450,000	183,960,000

The total grain production since 1830 has been approximately :—

Period	Tons Yearly			
	Europe	United States	Colonies, &c.	Total
1831–40	80,300,000	13,500,000	7,200,000	101,000,000
1851–60	101,150,000	26,350,000	11,500,000	139,000,000
1871–80	115,000,000	57,950,000	15,400,000	188,350,000
1881–87	132,000,000	67,500,000	21,500,000	221,000,000
1888	138,200,000	79,080,000	23,500,000	240,780,000

The ratio of increase in production of grain was thus :—

	1831–40	1851–60	1871–80	1888
Europe	100	126	144	172
United States . . .	100	195	430	585
Colonies, &c. . . .	100	160	214	326
Total . . .	100	138	186	238

The weight and value of grain used for human food in 1887 are shown approximately in the following table :—

	Tons				Value, Millions £
	Wheat	Rye	Oats, &c.	Total	
United Kingdom . . .	6,200,000	...	200,000	6,400,000	46
France	8,200,000	900,000	...	9,100,000	77
Germany	3,000,000	6,000,000	2,200,000	11,200,000	68
Russia	4,200,000	14,500,000	4,300,000	23,000,000	97
Austria	4,300,000	3,300,000	800,000	8,400,000	52
Italy	3,000,000	400,000	1,900,000	5,300,000	39
Spain*	3,000,000	400,000	400,000	3,800,000	28
Portugal	300,000	300,000	300,000	900,000	6
Sweden	300,000	700,000	200,000	1,200,000	8
Norway	100,000	200,000	100,000	400,000	3
Denmark	200,000	300,000	...	500,000	4
Holland	500,000	400,000	200,000	1,100,000	8
Belgium	800,000	600,000	200,000	1,600,000	12
Switzerland	300,000	200,000	100,000	600,000	4
Roumania	300,000	200,000	300,000	800,000	4
Servia	100,000	100,000	100,000	300,000	2
Europe	34,800,000	28,500,000	11,300,000	74,600,000	458
United States	7,300,000	600,000	2,100,000	10,000,000	48
Canada	800,000	...	100,000	900,000	6
Australia	700,000	...	...	700,000	5
Total . .	43,600,000	29,000,000	13,500,000	86,200,000	517

The different kinds of meat produced were as follows :—

Period	Tons Yearly			
	Beef	Mutton	Pork	Total
1831–40	3,821,000	2,050,000	2,830,000	8,701,000
1851–60	4,950,000	2,203,000	3,340,000	10,493,000
1874–84	6,303,000	2,470,000	4,490,000	13,263,000
1887	7,205,000	2,709,000	4,479,000	14,393,000

* Spanish statistics, as a rule, bear the impress of exaggeration, and hence the production and consumption of grian and the numbers of live-stock must be doubtful.

The consumption of meat in Europe at present averages 61 lbs. yearly per inhabitant, against 64 lbs. in the decade ending 1840, viz. :—

	Lbs. per Inhabitant	
	1840	1888
United Kingdom . .	87	109
France	43	77
Germany	60	64
Russia	67	51
Austria	76	61
Belgium	50	65

Meantime there has been an increased consumption per head in towns.

About 60,000 tons of frozen mutton are imported into Europe annually from Australia and the River Plate. An engine of 70-horse power serves to refrigerate a chamber containing 250 tons of meat, and consumes 50 tons of coal in a voyage of forty days.

The production of meat was approximately as follows :—

	Tons Yearly			
	1831-40	1851-60	1874-84	1887
U. Kingdom	980,000	1,047,000	1,100,000	1,105,000
France . .	670,000	940,000	1,155,000	1,200,000
Germany .	900,000	1,246,000	1,300,000	1,375,000
Russia . .	1,430,000	1,670,000	1,800,000	1,885,000
Austria . .	990,000	980,000	1,080,000	1,080,000
Italy . . .	300,000	300,000	330,000	360,000
Spain . .	405,000	350,000	470,000	525,000
Portugal .	70,000	77,000	90,000	95,000
Sweden . .	106,000	120,000	135,000	140,000
Norway .	44,000	64,000	67,000	67,000
Denmark .	100,000	115,000	110,000	115,000
Holland . .	96,000	104,000	120,000	125,000
Belgium . .	70,000	90,000	106,000	110,000
Other countries }	310,000	360,000	440,000	451,000
Europe . .	6,471,000	7,463,000	8,303,000	8,633,000
U. States .	2,050,000	2,650,000	4,120,000	4,750,000
Canada . .	90,000	140,000	240,000	260,000
Australia .	40,000	140,000	300,000	450,000
Argentine Republic }	50,000	100,000	300,000	300,000
Total .	8,701,000	10,493,000	13,263,000	14,393,000

The annual production in tons was as follows :—

	Beef				
Period	United Kingdom	Continent	United States	Colonies, &c.	Total
1831-40	300,000	2,790,000	630,000	100,000	3,820,000
1851-60	410,000	3,420,000	920,000	200,000	4,950,000
1874-84	520,000	3,843,000	1,540,000	400,000	6,303,000
1887	545,000	4,029,000	2,190,000	441,000	7,205,000

	Mutton.				
1831-40	480,000	1,320,000	170,000	80,000	2,050,000
1851-60	430,000	1,390,000	220,000	163,000	2,203,000
1874-84	390,000	1,420,000	310,000	350,000	2,470,000
1887	365,000	1,480,000	390,000	474,000	2,709,000

	Pork.				
1831-40	200,000	1,380,000	1,250,000	...	2,830,000
1851-60	210,000	1,600,000	1,510,000	20,000	3,340,000
1874-84	190,000	1,940,000	2,270,000	90,000	4,490,000
1887	195,000	2,019,000	2,170,000	95,000	4,479,000

	Total of Meat.				
1831-40	980,000	5,490,000	2,050,000	170,000	8,700,000
1851-60	1,050,000	6,410,000	2,650,000	340,000	10,493,000
1874-84	1,100,000	7,203,000	4,120,000	840,000	13,263,000
1887	1,105,000	7,528,000	4,750,000	920,000	14,393,000

The relative increase of each kind of meat since 1840 is shown in the following table :—

	1831-40	1851-60	1887
Beef . . .	100	130	188
Mutton . . .	100	108	132
Pork . . .	100	118	158
All meat . . .	100	120	166

The production in the various countries in 1887 was approximately as follows :—

	Tons Produced				Consumption
	Beef	Mutton	Pork	Total	
United Kingdom . . .	545,000	365,000	195,000	1,105,000	1,783,000
France	660,000	250,000	290,000	1,200,000	1,320,000
Germany	710,000	210,000	455,000	1,375,000	1,385,000
Russia	1,050,000	415,000	420,000	1,885,000	1,854,000
Austria	640,000	120,000	320,000	1,080,000	1,050,000
Italy	220,000	85,000	55,000	360,000	330,000
Spain	125,000	220,000	180,000	525,000	525,000
Portugal	25,000	25,000	45,000	95,000	94,000
Sweden	103,000	14,000	23,000	140,000	140,000
Norway	48,000	15,000	4,000	67,000	73,000
Denmark	74,000	15,000	26,000	115,000	57,000
Holland	93,000	9,000	23,000 .	125,000	105,000
Belgium	74,000	5,000	31,000	110,000	166,000
Switzerland	48,000	6,000	14,000	68,000	83,000
Roumania	120,000	40,000	80,000	240,000	210,000
Servia	27,000	23,000	50,000	100,000	75,000
Greece	12,000	28,000	3,000	43,000	47,000
Europe	4,574,000	1,845,000	2,214,000	8,633,000	9,297,000
United States	2,190,000	390,000	2,170,000	4,750,000	4,100,000
Canada	176,000	24,000	60,000	260,000	200,000
Australia	115,000	300,000	35,000	450,000	420,000
Argentina	150,000	150,000	...	300,000	250,000
Total . . .	7,205,000	2,709,000	4,479,000	14,393,000	14,267,000

There is a surplus production of 126,000 tons, which is consumed in the West Indies, Brazil, and other countries. At present Europe imports 660,000 tons yearly, and large supplies may in future be obtained from the United States, Australia, and the River Plate. Taking the slaughter as usual in Europe, viz., 20 per cent. yearly of horned cattle, 40 per cent. of sheep, and 100 per cent. of pigs, and the average carcase at 500 lbs. of beef, 50 lbs. of mutton, and 100 lbs. pork, the annual production and the available surplus for exportation would be :—

PLATE V.

FOOD-SUPPLY.

Production of Meat, lbs. yearly per Inhabitant.

| AUSTRALIA 300 | ARGENTINA 200 | U. STATES 178 | IRELAND 160 |

| DENMARK 128 | CANADA 116 | ROUMANIA 110 | NORWAY 78 | SPAIN 71 | FRANCE 70 |

| HOLLAND 69 | GERMANY 64 | AUSTRIA 63 | SWEDEN 62 | SWITZERLAND 62 | G. BRITAIN 53 | RUSSIA 51 | BELGIUM 43 | ITALY 28 |

Consumption of Meat, lbs. yearly per Inhabitant.

| AUSTRALIA 276 | ARGENTINA 160 | U. STATES 150 | G. BRITAIN 118 | CANADA 90 |

| ROUMANIA 82 | NORWAY 78 | FRANCE 77 | SPAIN 71 | BELGIUM 65 | GERMANY 64 | DENMARK 64 |

| SWEDEN 62 | SWITZERLAND 62 | AUSTRIA 61 | HOLLAND 57 | IRELAND 56 | RUSSIA 51 | ITALY 26 |
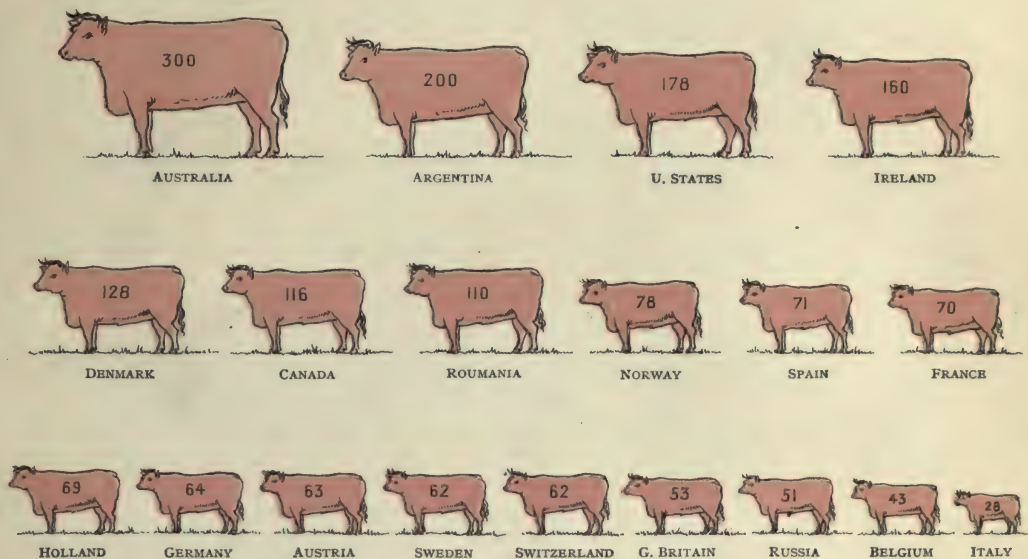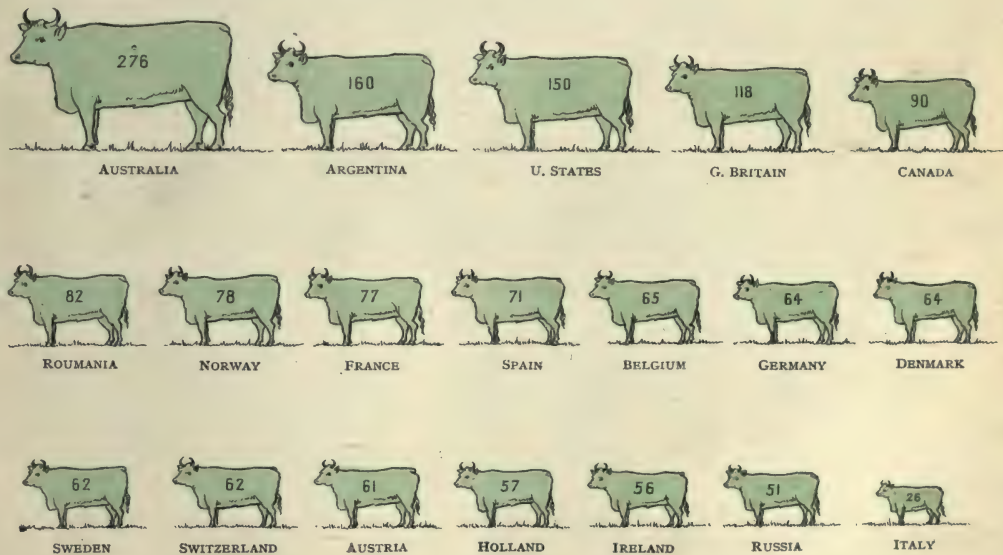
	Tons Production				Tons Consumption	Tons for Export
	Beef	Mutton	Pork	Total		
United States . . .	2,190,000	390,000	2,170,000	4,750,000	4,140,000	610,000
Australia	400,000	870,000	30,000	1,300,000	420,000	880,000
River Plate . . .	1,120,000	900,000	10,000	2,030,000	260,000	1,770,000
Total . . .	3,710,000	2,160,000	2,210,000	8,080,000	4,820,000	3,260,000

The available surplus of the above three countries will be equal to 34 per cent. of the annual meat consumption of Europe, say four months' supply.

At present, however, the beef of the River Plate is out of the question, owing to the poor quality of the beasts. The importation of frozen mutton into England from the Southern Hemisphere has increased rapidly of late years. In 1889 the following quantities were received :—

From	Tons	Value, £	Per Ton, £
Australia . . .	30,600	1,290,000	43
Argentina . . .	19,700	750,000	38
Falklands, &c. .	7,100	360,000	50
Total . .	57,400	2,400,000	42

New Zealand sheep average 70 lbs., Argentine 40 lbs., and the approximate cost of the mutton delivered in London is as follows :—

	Pence per Lb.	£ per Ton
First cost of meat . .	2.5	23.3
Freezing process . .	0.5	4.7
Freight and charges .	1.0	9.4
Total . .	4.0	37.4

The production of beef-extract has also increased, as the slaughter at Liebig's factory at Fray Bentos, Uruguay, rose from 200,000 head of cattle in 1881 to 580,000 in 1884.

Block gave the average annual consumption of meat in the following cities in ten years down to 1877 as follows :—

Pounds Meat per Inhabitant

Paris .	. . . 207	Milan .	. . .	106
Vienna	. . . 150	Berlin .	. . .	90
Dresden	. . . 140	Naples	. . .	75
Turin .	. . . 125	Boston	. . .	306

In London the apparent consumption is only 230,000 tons, or 128 lbs. per inhabitant, but this does not include tinned meats, such as corned beef.

In 1861 the consumption per head was estimated at 172 lbs. in London, 138 in Paris, 119 in Berlin, and 103 in Madrid.

The consumption of food is approximately :—

	Lbs. per Inhabitant						
	Grain	Meat	Butter and Cheese	Sugar	Potatoes	Salt	Tea and Coffee, Oz.
U. Kingdom . .	378	109	19	75	380	40	91
France	540	77	8	20	570	20	66
Germany . . .	550	64	8	18	1,020	17	78
Russia	635	51	5	11	180	19	6
Austria	460	61	7	18	560	14	28
Italy	400	26	4	8	50	18	20
Spain	480	71	3	6	20	17	6
Portugal . . .	500	49	3	12	40	17	18
Sweden	560	62	11	22	500	28	112
Norway	440	78	14	13	500	40	144
Denmark . . .	560	64	22	22	410	25	140
Holland . . .	560	57	15	35	820	20	240
Belgium . . .	590	65	15	27	1,050	...	142
Switzerland . .	440	62	11	26	140	...	110
Roumania . .	400	82	9	4	80	...	8
Servia . . .	400	84	9	4	80	...	8
Europe	480	61	9	22	420	20	21
United States . .	370	150	20	53	170	39	162
Canada	400	90	22	45	600	40	72
Australia . . .	440	276	21	77	310	...	134
General average .	440	72	11	28	380	...	64

The quantities of food consumed by mankind in the various countries in 1887 were approximately as follows :—

	Tons					
	Grain	Meat	Butter and Cheese	Sugar	Potatoes	Coffee and Tea
United Kingdom	6,400,000	1,783,000	328,000	1,300,000	6,300,000	92,000
France	9,100,000	1,320,000	145,000	400,000	10,000,000	70,000
Germany	11,200,000	1,385,000	185,000	410,000	22,000,000	110,000
Russia	23,000,000	1,854,000	210,000	412,000	6,700,000	15,000
Austria	8,400,000	1,050,000	130,000	305,000	10,000,000	33,000
Italy	5,300,000	330,000	60,000	98,000	600,000	16,000
Spain	3,800,000	525,000	30,000	53,000	200,000	7,000
Portugal	900,000	94,000	7,000	24,000	100,000	3,000
Sweden	1,200,000	140,000	25,000	47,000	1,100,000	15,000
Norway	400,000	73,000	13,000	11,000	500,000	7,000
Denmark	500,000	57,000	20,000	21,000	300,000	9,000
Holland	1,100,000	105,000	30,000	63,000	1,400,000	27,000
Belgium	1,600,000	166,000	40,000	70,000	2,700,000	24,000
Switzerland	600,000	83,000	15,000	34,000	200,000	9,000
Roumania	800,000	210,000	20,000	10,000	300,000	1,000
Servia	300,000	75,000	10,000	4,000	100,000	...
Europe	74,600,000	9,250,000	1,268,000	3,262,000	62,500,000	438,000
United States	10,000,000	4,100,000	560,000	1,440,000	3,800,000	280,000
Canada	900,000	200,000	50,000	100,000	1,300,000	10,000
Australia	700,000	420,000	36,000	110,000	500,000	16,000
Total . .	86,200,000	13,970,000	1,914,000	4,912,000	68,100,000	744,000

The annual value of food consumed in various countries is approximately as follows :—

	Grain	Meat	Sugar	Dairy and Poultry	Potatoes	Coffee, &c.	Liquor	Sundries	Total	Per Inhabitant
										£ s. d.
United Kingdom . .	46	87	23	61	19	9	79	48	372	9 12 6
France	77	66	6	59	22	7	92	32	361	9 8 0
Germany	68	69	6	69	56	11	81	40	400	8 8 0
Russia	97	60	6	60	11	2	42	82	360	4 12 0
Austria	52	44	5	41	22	3	40	28	235	6 1 0
Italy	39	17	2	19	1	2	41	23	144	4 16 0
Spain	28	26	1	14	...	1	30	12	112	6 10 0
Portugal	6	5	...	3	...	...	6	3	24	5 10 0
Sweden	8	7	1	7	2	2	7	3	37	7 13 0
Norway	3	3	...	3	1	1	3	1	15	7 10 0
Denmark	4	3	...	4	1	1	3	2	18	9 0 0
Holland	8	5	1	5	3	3	6	5	36	8 0 0
Belgium	12	8	1	7	6	3	14	5	56	9 7 0
Switzerland . . .	4	5	...	3	...	1	3	3	20	6 12 0
Roumania . . .	4	8	...	6	...	...	3	3	25	5 0 0
Servia	2	3	...	2	...	...	1	1	10	5 0 0
Europe . . .	458	416	53	363	146	47	481	261	2,225	6 10 0
United States . .	48	123	21	115	16	24	66	42	455	7 12 0
Canada . . .	6	6	2	7	4	1	3	3	32	6 10 0
Australia . . .	5	8	2	5	1	1	3	3	28	8 5 0
Total . .	517	553	78	490	167	73	553	309	2,740	7 0 0

The above represents the values in first hands, to which must be added 30 per cent. for distribution in retail. As regards liquor, the excise duties are not included, these being comprised under *Taxes*. Professor Keleti estimates the expenditure for food in Austria-Hungary at £9 per man, £7 per woman, and £5 per child, or £7 per inhabitant, which would be 266 millions sterling, being 20 per cent. over the estimate in the above table : his calculation is probably at retail prices.

* The blanks in the table stand for fractions, the amount of which is included at foot.

UNITED KINGDOM

The home production of wheat and meat is as follows :—

	Wheat, Bushels	Beef, Tons	Mutton, Tons	Pork, Tons	Total Meat, Tons
England	77,000,000	268,000	234,000	113,000	615,000
Scotland	2,000,000	58,000	88,000	8,000	154,000
Ireland	1,900,000	218,000	44,000	70,000	332,000
United Kingdom . . .	79,900,000	544,000	366,000	191,000	1,101,000

Food-supply has improved in late years, and the people of this country are the best fed in Europe. The consumption per inhabitant has been approximately as follows :—

	Wheat	Meat	Sugar	Tea	Salt	Beer	Rice	Eggs
	Lbs.	Lbs.	Lbs.	Oz.	Lbs.	Galls.	Lbs.	No.
1811–30	270	80	19	18	16	22	1	40
1831–50	255	87	20	23	25	24	1	48
1851–70	320	90	35	44	45	28	3	60
1871–80	354	93	60	67	72	29	11	65
1881–88	370	102	70	77	72	27	11	70
1889	354	109	75	78	72	27	11	76

The consumption of meat in Great Britain and Ireland differs considerably, viz. :—

	Tons Consumed		Lbs. Meat per Inhab.	
	Great Britain	Ireland	Great Britain	Ireland
British . .	769,000	...	53	...
Irish . . .	237,000	95,000	16	43
Foreign . .	712,000	30,000	49	13
Total .	1,718,000	125,000	118	56

The actual amount of salt consumed for food is probably no more than 36 lbs. per inhabitant, as one-half is supposed to be used in manufactures. The following table shows how our bread-supply and meat are provided :—

Period	Wheat, Million Bushels per Annum			Meat, Tons per Annum		
	Native	Imported	Total	Native	Imported	Total
1841–50	108	14	122	1,014,000	...	1,014,000
1851–60	103	47	150	1,047,000	44,000	1,091,000
1861–70	102	73	175	1,078,000	131,000	1,209,000
1871–80	77	114	191	1,091,000	288,000	1,379,000
1881–88	72	144	216	1,105,000	540,000	1,645,000
1889	70	154	224	1,100,000	742,000	1,842,000

In 1889 Ireland exported to Great Britain the following cattle :—

717,000 cows = 193,000 tons meat.
636,000 sheep = 20,000 ,,
545,000 pigs = 24,000 ,,

Total . . 237,000 ,,

The annual slaughter in the United Kingdom was approximately as follows :—

Period	Horned Cattle	Sheep	Pigs	Tons Meat		
				Beef	Mutton	Pork
1831–40 . . .	1,140,000	15,200,000	2,700,000	305,000	475,000	200,000
1841–50 . . .	1,350,000	14,400,000	2,700,000	364,000	450,000	200,000
1851–50 . . .	1,540,000	13,600,000	2,800,000	412,000	425,000	210,000
1861–70 . . .	1,730,000	13,000,000	2,800,000	462,000	406,000	210,000
1871–80 . . .	1,920,000	12,400,000	2,500,000	514,000	387,000	190,000
1881–88 . . .	2,040,000	11,800,000	2,600,000	544,000	366,000	195,000

The weight and value of all kinds of meat imported in 1889 were as follows :—

	Tons	Value, £	£ per Ton
Live cattle . .	300,000	10,400,000	35
Bacon	175,000	7,300,000	41
Beef	127,000	5,200,000	41
Mutton	61,000	2,600,000	42
Hams	50,000	2,500,000	50
Pork	19,000	700,000	36
Lard	60,000	2,200,000	36
Poultry	10,000	500,000	50
Rabbits . . .	6,000	300,000	50
Total . .	808,000	31,700,000	39

As regards live cattle, the above is an estimate of their equivalent in dead meat, on the assumption that £35 sterling stands for a ton of meat. Deducting lard, poultry, and rabbits, the importation of meat was 742,000 tons.

Full-grown animals in England average as follows :—

	Meat	Fat, &c.	Hide	Total, Lbs.
Cattle . .	680	356	84	1,120
Sheep . .	91	43	18	152

Cows give from 70 to 160 lbs. tallow.

The importation of articles of food is shown in the following tables, that is, the quantities and values of what were retained for consumption.

	1860	1870	1880	1889
Wheat, tons	1,270,000	1,550,000	2,760,000	3,850,000
Sugar, ,,	470,000	740,000	980,000	1,300,000
Meat, ,,	87,000	140,000	590,000	742,000
Butter, ,,	37,000	52,000	104,000	136,000
Cheese, ,,	26,000	46,000	79,000	82,000
Rice, ,,	18,000	90,000	290,000	180,000
Tea & cof-} fee, tons }	63,000	73,000	90,000	96,000
Potatoes, } tons }	28,000	39,000	490,000	90,000
Eggs, mill.	168	431	747	1,130
Fish, tons	22,000	38,000	67,000	95,000
Fruit, ,,	80,000	110,000	280,000	370,000
Spirits, gall.	7,000,000	13,800,000	7,000,000	9,600,000
Wine, ,,	10,200,000	16,100,000	16,000,000	14,200,000

VALUES OF FOOD IMPORTS.

	1860	1870	1880	1889
	£	£	£	£
Wheat .	20,900,000	19,700,000	39,300,000	31,100,000
Sugar . .	12,400,000	17,600,000	22,200,000	22,600,000
Meat . .	4,400,000	7,700,000	26,600,000	31,600,000
Butter. .	4,100,000	6,800,000	12,100,000	13,900,000
Cheese .	1,600,000	3,300,000	5,100,000	4,500,000
Tea . .	5,900,000	9,000,000	8,800,000	8,400,000
Coffee. .	1,200,000	800,000	1,300,000	1,100,000
Rice . .	400,000	900,000	2,100,000	1,500,000
Eggs . .	500,000	1,100,000	2,200,000	3,100,000
Potatoes .	140,000	250,000	2,800,000	700,000
Fish . .	400,000	800,000	1,700,000	2,600,000
Fruit . .	1,900,000	2,200,000	5,500,000	6,100,000
Spirits. .	1,300,000	2,800,000	1,500,000	1,700,000
Wine . .	3,400,000	4,300,000	5,900,000	5,000,000
Human } food }	58,540,000	77,250,000	137,100,000	133,900,000
Oats,bar-} ley,&c. }	10,800,000	14,500,000	23,600,000	19,700,000
Total .	69,340,000	91,750,000	160,700,000	153,600,000

The weight of all food imports at the above dates was :—

	Human Food		All Food	
	Tons	Lbs. per Inhab.	Tons	Lbs. per Inhab.
1860 . . .	2,202,000	170	3,560,000	280
1870 . . .	3,062,000	218	5,270,000	380
1880 . . .	5,901,000	380	9,840,000	630
1889 . . .	7,160,000	420	10,910,000	640

The number of days in each year in which the population subsisted on native and on imported food was as follows :—

	Wheat				Meat			
	1860	1870	1880	1889	1860	1870	1880	1889
Native	244	210	142	114	340	323	236	223
Imported . . .	122	155	224	251	26	42	130	142
Total . .	366	365	366	365	366	365	366	365

The number of people fed in those years on native and on imported food were :—

Year	Wheat		Meat		
	Native	Imported	Native	Imported	Total
1860	19,000,000	9,500,000	26,500,000	2,000,000	28,500,000
1870	17,900,000	13,300,000	27,600,000	3,600,000	31,200,000
1880	13,500,000	21,000,000	22,100,000	12,400,000	34,500,000
1889	11,800,000	26,000,000	23,100,000	14,700,000	37,800,000

The importation of food from foreign countries has greatly diminished the expenditure of the nation in this regard, and thus enabled the masses to procure more food than before. Hence we find that, while the people are better fed, the annual outlay for the principal articles of food, per inhabitant, is much less than it has been for 30 years back. The more largely we import food the cheaper and more abundant the supply, which, moreover, accounts partly for the increasing span of life.

The following table shows approximately the annual expenditure on certain articles of food since 1830 :—

| | Millions £ Sterling | | | | Per Inhabitant |
	Wheat	Meat	Tea and Sugar	Total	
					£ s. d.
1831–40	41	40	8	89	3 12 0
1841–50	40	42	9	91	3 7 0
1851–60	51	50	15	116	4 2 0
1861–70	57	59	26	142	4 15 0
1871–80	58	83	32	173	5 5 0
1881–85	55	102	30	187	5 4 0
1888	46	80	31	157	4 5 0

If we consider collectively all the food, of whatever kind, for man and beast (except wines, liquors, and tobacco), the annual outlay for ten years ending 1885 averaged thus :—

| | Millions £ Sterling | | |
	Home-Grown	Imported	Total
Grain	68	59	127
Meat	79	25	104
Dairy products .	39	16	55
Sundries . . .	69	18	87
Tea, sugar, &c. .	...	40	40
Total . .	255	158	413

The following table shows the net imports of grain for 130 years :—

Period	Tons per Annum	Lbs. per Inhabitant	Period	Tons per Annum	Lbs. per Inhabitant
1760–90	25,000	5	1851–60	1,950,000	154
1791–1810	110,000	16	1861–70	3,200,000	238
1811–30	115,000	12	1871–80	5,720,000	374
1831–50	480,000	45	1881–89	6,800,000	420

The meat consumption of London (exclusive of tinned meats) was estimated at 100,000 tons in 1842, and 210,000 tons in 1882, being as 112 and 128 lbs. respectively per inhabitant.

FRANCE

The production of wheat and meat has been as follows :—

| Year | Tons | | Lbs. per Inhabitant | |
	Wheat	Meat	Wheat	Meat
1840 . . .	4,900,000	670,000	326	45
1860 . . .	5,200,000	942,000	314	60
1880 . . .	7,200,000	1,200,000	440	73
1888 . . .	7,200,000	1,200,000	417	70

The percentage of people fed on wheat, comparing Moreau's tables with our own time, appears as follows :—

| Year | Percentage Fed on | | Year | Percentage Fed on | |
	Wheat	Rye, &c.		Wheat	Rye, &c.
1700	33	67	1818	45	55
1764	36	64	1839	60	40
1791	39	61	1888	86	14

The net annual importations of grain averaged approximately as follows :—

Period	Tons per Annum	Lbs. per Inhabitant
1801–40	14,000	1
1841–60	35,000	2
1861–70	79,000	4
1871–80	260,000	15
1881–87	1,460,000	84

The weight and value of grain used for food in 1887 were approximately as follows :—

	Tons	Value, £
Wheat	8,200,000	71,000,000
Rye	900,000	6,000,000
Total . .	9,100,000	77,000,000

Mr. Neumann-Spallart estimated the meat-supply as follows :—

| Year | Tons | | | Lbs. per Inhabitant |
	Native	Imported	Total	
1856 . . .	835,000	38,000	873,000	54
1867 . . .	1,053,000	85,000	1,138,000	67
1877 . . .	1,200,000	117,000	1,317,000	78

French economists seem to over-estimate the production of pork, which they put at 140 lbs. yearly per pig. Adopting their figures for the past, and putting pigs in 1888 at 112 lbs., the production of meat was as follows :—

| | Tons | | | | Per Inhabitant, Lbs. | | | |
	1840	1860	1880	1888	1840	1860	1880	1888
Beef	299,000	450,000	640,000	660,000	19	27	37	37
Mutton	82,000	114,000	210,000	250,000	5	7	12	14
Pork	290,000	378,000	305,000	290,000	19	23	18	16
Total . .	671,000	942,000	1,155,000	1,200,000	43	57	67	67

The average weight of animals in 1885 was nearly 50 per cent. greater than in 1847, viz. :—

	Weight in Lbs.	
	1847	1885
Oxen	700	1,030
Cows	500	740
Sheep . . .	50	80
Goats . . .	50	70
Pigs	200	224

In 1859 M. Lavergne compared the food consumption with what it was in 1789 thus :—

	Consumption Lbs. per Head	
	1789	1859
Meat	39	61
Wheat . . .	210	330
Rye, &c. . . .	280	160

The food consumption of Paris, according to a statement published in 1838, was as follows :—

Year	Population	Per Inhabitant			
		Meat, Lbs.	Wine, Bottles	Beer, Bottles	Brandy, Bottles
1789	600,000	179	120	9	4
1817	714,000	150	114	11	6
1827	802,000	146	126	20	5
1837	842,000	128	111	13	11

The consumption in Paris in 1880 was as follows :—

	Per Inhab. Lbs.		Per Inhab. Lbs.
Meat	187	Butter and cheese .	18
Fish	29	Vegetables and fruit .	660
Fowl	24	Coal	960

Also 127 eggs, 48 gallons wine, and 1½ gallon spirits.

The consumption of bread per inhabitant in Paris has declined as follows :—

Year	Lbs.	Year	Lbs.
1833-35 . . .	392	1860-69 . . .	361
1856-59 . . .	345	1879	331

The consumption of game in Paris in 1888 was as follows :—

	Native	Imported	Total
Partridges . .	160,000	421,000	581,000
Pheasants . . .	8,000	85,000	93,000
Larks	153,000	110,000	263,000
Wild ducks . .	10,000	40,000	50,000
Pigeons, &c. . .	375,100	626,700	1,001,800
Deer	2,800	10,500	13,300
Wild boars . .	300	1,400	1,700
Total . .	709,200	1,294,600	2,003,800

The urban population is much better fed than the rural, notwithstanding the fact that food is dearest in towns. The consumption of meat in French cities averages three times as much per head as in the rural departments.

In 1885 the consumption of food in French cities was as follows :—

Cities	Population	Tons		Gallons, Millions		Lbs. per Head		Gallons per Head	
		Bread	Meat	Wine	Beer	Bread	Meat	Wine	Beer
Paris	2,260,000	355,000	171,000	97.0	6.0	343	167	43	2.4
Lyons	350,000	55,000	25,000	1.4	0.6	348	176	42	1.8
Marseilles . . .	270,000	58,000	18,000	1.1	0.6	464	143	43	2.0
Bordeaux . . .	220,000	38,000	17,000	1.0	0.4	380	170	46	1.5
Lille	150,000	32,000	7,100	0.9	9.0	480	106	6	60.0
Toulouse . . .	130,000	28,000	7,700	5.0	0.2	498	132	38	2.2
Nantes	120,000	34,000	5,600	4.0	...	627	104	33	0.7
St. Etienne . . .	110,000	18,000	5,700	4.0	0.4	348	110	41	1.3
Havre	110,000	20,000	5,500	0.9	0.4	411	114	8	4.0
Rouen	110,000	19,000	6,600	1.1	0.3	400	136	10	2.6
Nice	59,000	12,000	3,600	3.0	0.3	480	145	58	2.4
Total .	3,880,000	669,000	272,800	119.4	18.2	385	154	31	5.0

Meat in the above table does not include live cattle introduced for consumption. Thus Paris also consumed 300,000 horned cattle, 1,900,000 sheep, and 250,000 pigs, equal to 130,000 tons of meat, which would bring up the total to 301,000 tons, say 295 lbs. per head.

There was, moreover, the following consumption of cider in certain cities, per head :—

	Galls.		Galls.
Rouen . . .	33.0	Havre . . .	21.0
Paris	3.5	Nantes . . .	3.5

The aggregate of 25 French cities, including those in the above table, showed as follows (pop. 4,780,000) :—

Bread, tons . .	839,000	Bread, lbs. per head .	387
Meat, ,, . .	331,400	Meat, ,, ,, .	154
Wine, gallons	178,000,000	Wine, gallons . . .	38
Beer, ,,	26,400,000	Beer, ,, . . .	5½

The average in the same cities in 1880 was : bread 449 lbs., meat 127, wine 35, beer 5 gallons per head. There has been, therefore, a decrease in bread, but an increase of meat and wine.

The quantity of horse-flesh used for human food at Paris was only 400 tons in 1867, rising to 994 in 1872. The slaughter of horses for the city market was 4680 animals in 1874, and 9830 in 1883. The principal food imports into France since 1860 have been as follows :—

	Annual Average of Value		
	1861-70	1871-80	1881-87
	£	£	£
Grain	6,300,000	15,800,000	14,300,000
Cattle and meat .	3,800,000	6,600,000	7,300,000
Sugar	4,800,000	4,200,000	3,700,000
Wine	...	2,600,000	15,700,000

The meat-supply since 1850 has been approximately thus :—

| Period | Tons Yearly | | | Pounds Per Inhab. |
	Native	Imported	Total	
1851–60 . .	840,000	40,000	880,000	50
1861–70 . .	1,020,000	76,000	1,096,000	65
1871–80 . .	1,100,000	110,000	1,210,000	74
1881–87 . .	1,200,000	120,000	1,320,000	80

The consumption of coffee, sugar, wine, and beer per inhabitant was as follows, per annum :—

	1860–64	1870–74	1880–84	1887
Coffee, oz. .	37	40	62	64
Sugar, lbs. .	12	15	23	20
Wine, galls..	18	25	21	19
Beer ,,	4	4	5	5

Professor Boch makes the consumption of sugar in 1860–64 only 8 lbs. per inhabitant yearly, but the French estimates of production and consumption make it 12 lbs.

GERMANY

The production of grain and meat, the former including what was used both for man and beast, has been approximately as follows :—

| Year | Tons | | Lbs. per Inhabitant | |
	Grain	Meat	Grain	Meat
1816	5,000,000	600,000	440	54
1837	7,500,000	760,000	560	60
1852	11,200,000	890,000	750	60
1875	14,300,000	1,280,000	740	67
1887	16,000,000	1,375,000	745	64

A statement published in Saxony in 1876 gave the meat consumption per head as follows :—

Period	Beef and Mutton	Pork	Total, Lbs.
1836–55	14	18	32
1856–65	18	26	44
1866–75	21	30	51
1875	26	34	60

The average in 1875 for all the towns of Saxony collectively was 68 lbs., for rural districts 47 lbs. per inhabitant. In 1870 the consumption in various cities was as follows :—

Pounds per Inhabitant

Berlin . . . 99 | Cologne . . 104 | Hamburg . . 92
Bremen . . 113 | Dresden . . 104 | Leipzig . . 164
Breslau . . 94 | Dusseldorf . 104 | Magdeburg . 102
Coblenz . . 104 | Frankfort . . 171 | Munich . . 166

The net imports of grain and meat into Germany were :—

| Year | Tons | | Lbs. per Inhabitant | |
	Grain	Meat	Grain	Meat
1873	800,000	30,000	40	2
1880	700,000	....	35	...
1887	1,900,000	10,000	90	½

The weight and value of grain used for food were in 1887 approximately as follows :—

		Tons	Value, £
Wheat	. . .	3,000,000	21,000,000
Rye .	. . .	6,000,000	34,000,000
Oats, &c. .	.	1,200,000	7,000,000
Total	.	10,200,000	62,000,000

The consumption of potatoes is large, averaging 1020 lbs. yearly per inhabitant.

The consumption of grain according to Spallart in the years 1881–84 averaged thus :—

| | Millions of Bushels | | | Lbs. per Inhabitant |
	Native	Imported	Total	
Wheat . .	81	21	102	132
Rye . . .	193	29	222	290
Barley . .	76	14	90	120
Oats . . .	138	11	149	200
Total .	488	75	563	742

The consumption of secondary articles was as follows :—

| Year | Consumption per Inhabitant | | | | |
	Sugar, Lbs.	Coffee, Lbs.	Foreign Fish, Lbs.	Tobacco, Oz.	Beer, Gallons
1873	14	5.0	4	72	18
1880	14	4.8	4	35	18
1887	18	4.6	7	56	18

The only articles of which Germany has a surplus for exportation are sugar and butter, viz. :—

| Year | Tons Exported | | Value, £ | |
	Butter	Sugar	Butter	Sugar
1873 . . .	12,000	13,000	1,200,000	440,000
1880 . . .	12,000	250,000	1,050,000	5,500,000
1887 . . .	15,000	620,000	1,100,000	9,050,000

The net importation of wine averages 10 million gallons, and the exportation of beer 30 million gallons yearly.

The following table shows the consumption of imported food since 1836 :—

| Period | Tons Yearly | | Barrels Fish | Lbs. per Inhabitant | | |
	Coffee	Rice		Coffee	Rice	Fish
1836–40	27,000	5,000	190,000	2.2	0.4	2.4
1841–50	37,000	11,000	265,000	2.8	0.8	3.1
1851–60	54,000	30,000	295,000	3.7	2.1	3.1
1861–70	74,000	36,000	460,000	4.4	2.2	4.2
1871–80	97,000	68,000	690,000	5.0	3.5	5.3
1881–85	111,000	83,000	915,000	5.4	4.0	6.6
1887	102,000	83,000	1,095,000	5.3	3.8	8.0

RUSSIA.

This is a great food-producing country, with a constant surplus for exportation. The production of all kinds of grain and of meat has been approximately as follows :—

| Year | Tons | | Lbs. per Inhab. | |
	Grain	Meat	Grain	Meat
1835	26,000,000	1,430,000	1,210	67
1850	31,000,000	1,670,000	1,270	67
1870	36,000,000	1,760,000	1,220	60
1887	47,500,000	1,885,000	1,260	51

Exports of grain and meat have been as follows, per annum :—

| Period | Tons | | Value, £ |
	Grain	Meat	
1810–13 . . .	250,000	...	2,000,000
1834–40 . . .	700,000	...	4,200,000
1841–47 . . .	800,000	...	4,800,000
1861	1,400,000	4,000	9,200,000
1870	3,050,000	16,000	20,800,000
1887	6,100,000	31,000	31,700,000

The exports of grain, taken from official returns, were :—

| Period | Millions of Bushels Yearly | | | | | Value, £ |
	Wheat	Rye	Barley	Oats, &c.	Total	
1851–60 .	20	7	3	6	36	5,500,000
1861–70 .	36	10	4	9	59	10,100,000
1871–80 .	59	43	12	43	157	27,700,000
1881–87 .	70	40	24	60	194	29,000,000

It would seem that the home consumption has only kept pace with population. For human food, wheat and rye are mainly used. The consumption per head was as follows :—

| Year | Pounds per Head | | |
	Wheat	Rye, &c.	Total
1861 . . .	124	556	680
1870 . . .	118	552	670
1880 . . .	122	538	660
1887 . . .	110	530	640

The consumption of secondary articles was as follows :—

| Year | Tons | | | | Per Inhabitant | | | |
	Sugar	Coffee	Tea	Foreign Salt, Lbs.	Sugar, Lbs.	Coffee, Oz.	Tea, Oz.	Foreign Salt, Lbs.
1860	146,000	6,000	4,000	150,000	6	3	2	6
1870	200,000	7,000	9,000	170,000	7	4	5	6
1880	250,000	8,000	18,000	150,000	8	4	9	5
1887	410,000	5,000	10,000	150,000	11	2	4	4

Russia produces more sugar than she needs, and exports 60,000 tons. Her consumption of wine averages 30 million gallons, of which 25 millions are grown at home.

The quantity and value of grain used for food in 1887 were as follows :—

	Tons	Value, £
Wheat	4,200,000	21,000,000
Rye	14,500,000	61,000,000
Oats, &c.	4,300,000	15,000,000
Total . .	23,000,000	97,000,000

AUSTRIA-HUNGARY.

The production of grain and meat was as follows :—

| | Million Tons | | Lbs. per Inhab. | |
	Grain	Meat	Grain	Meat
1836	9,100,000	990,000	750	79
1850	13,700,000	980,000	840	73
1870	12,500,000	1,080,000	780	68
1887	18,000,000	1,080,000	1,040	63

The average consumption of grain and meat has steadily decreased per head, but that of potatoes has increased, the last crop reaching 7,500,000 tons, or 3½ bushels per inhabitant.

The production and consumption of grain has been as follows :—

| Year | Millions of Bushels | | | | | |
	Crop	Seed	Exported	Food	Cattle, &c.	Total
1835 .	1,040	160	28	670	182	1,040
1850 .	1,240	190	32	750	268	1,240
1870 .	1,450	220	122	800	308	1,450
1887 .	1,900	290	244	926	440	1,900

The production and consumption of wheat are shown approximately thus :—

| Year | Millions of Bushels | | | | |
	Crop	Seed	Exported	Food	Total
1861	180	30	29	121	180
1870	217	36	55	126	217
1880	220	37	35	148	220
1887	270	45	75	150	270

The quantities of wheat, rye, oats, &c., retained for home consumption have been approximately as follows :—

| Year | Millions of Bushels | | | | | Bushels per Inhabitant |
	Wheat	Rye	Oats	Maize, &c.	Total	
1861	121	454	442	43	1,060	18
1870	126	475	450	57	1,108	17
1880	148	505	475	112	1,240	16½
1887	150	550	460	206	1,366	16

The exports of grain, meat, and sugar were as follows :—

| Year | Tons | | | Value, £ |
	Grain	Meat	Sugar	
1860 . . .	400,000	15,000	...	3,400,000
1870 . . .	620,000	20,000	64,000	7,900,000
1880 . . .	900,000	72,000	240,000	20,100,000
1887 . . .	800,000	40,000	220,000	12,200,000

The disposal approximately of all grain was as follows :—

| Year | Millions of Bushels | | | | |
	Crop	Seed	Exported	Consumption	Total
1870 . . .	500	70	25	405	500
1880 . . .	600	85	36	479	600
1887 . . .	717	102	32	583	717

The weight and value of grain consumed for food in 1887 were approximately as follows :—

	Tons	Value, £
Wheat . . .	4,300,000	30,000,000
Rye . . .	3,300,000	18,000,000
Other grain .	800,000	4,000,000
Total . .	8,400,000	52,000,000

The production and consumption of wine were as follows :—

	Millions of Gallons Yearly			Gallons per Inhab.
	Vintage	Exported	Consumed	
1876–85 . .	198	8	190	5
1887 . . .	212	14	198	5

The consumption of sugar and coffee was approximately as follows :—

Year	Tons		Per Inhab.	
	Sugar	Coffee	Sugar, Lbs.	Coffee, Oz.
1860 . . .	60,000	20,000	4	20
1870 . . .	100,000	27,000	6	26
1880 . . .	230,000	31,000	14	29
1887 . . .	305,000	32,000	18	28

Austria consumes only 60 per cent. of the sugar she produces, exporting over 200,000 tons yearly.

ITALY

Notwithstanding her fertile soil, Italy produces an insufficient food-supply, except as regards wine and fruit. The production of grain and meat was approximately as follows :—

Year	Tons		Lbs. per Inhabitant	
	Grain	Meat	Grain	Meat
1828	2,900,000	330,000	380	44
1840	3,200,000	300,000	385	35
1874	5,100,000	300,000	403	24
1886	5,600,000	360,000	426	28

The net imports of sundry articles of food was as follows :—

	Per Annum, Tons			Lbs. per Inhabitant		
	1861–70	1871–80	1881–87	1861–70	1871–80	1881–87
Grain	252,000	160,000	390,000	22	14	30
Sugar	61,000	78,000	98,000	5	7	8
Fish .	25,000	39,000	43,000	2	3½	3½
Cheese	5,000	7,000	10,000	7 oz.	9 oz.	12 oz.
Coffee	11,000	13,000	16,000	15 oz.	17 oz.	20 oz.

The exports of food from Italy were as follows :—

	Per Annum			Value, £		
	1861–70	1871–80	1881–87	1861–70	1871–80	1881–87
Meat, tons . . .	16,000	38,000	30,000	800,000	1,900,000	1,520,000
Rice ,, . . .	61,000	68,000	73,000	960,000	840,000	1,020,000
Fruit ,, . . .	75,000	96,000	165,000	1,500,000	1,400,000	1,800,000
Eggs, millions . . .	71	320	480	110,000	680,000	1,300,000
Oil, million gallons .	13	17	16	3,100,000	4,300,000	3,200,000
Wine ,, ,, .	6	14	48	480,000	900,000	2,800,000
Total . .	...	...	...	6,950,000	10,020,000	11,640,000

The consumption of wine, grain, and meat was :—

	Yearly per Inhabitant		
	1861–70	1871–80	1881–87
Wine, gallons. . . .	16	20	18
Grain, lbs.	420	424	455
Meat, ,, ...	23	24	26

The weight and value of grain consumed for food in 1887 were approximately as follows :—

	Tons	Value, £
Wheat . . .	3,000,000	24,000,000
Rye	400,000	3,000,000
Maize, &c. . .	1,900,000	12,000,000
Total . .	5,300,000	39,000,000

SPAIN

The production of grain and meat was apparently thus :—

Year	Tons		Lbs. per Inhabitant	
	Grain	Meat	Grain	Meat
1826	3,400,000	405,000	560	77
1886	7,500,000	525,000	1,050	71

This is supposing official figures to be correct, but it is remarkable that in recent years Spain has largely imported grain, which would be apparently unnecessary if each inhabitant produced half a ton, as above. The net imports of grain have averaged yearly as follows :—

Period				Tons	Lbs. per Inhab.
1880–82	.	.	.	73,000	10
1883–85	.	.	.	122,000	16
1886–87	.	.	.	208,000	28

Before 1880 there was always a surplus of grain for exportation, viz. :—

Period				Tons Yearly	Value, £
1863–68	.	.	.	72,000	900,000
1872–75	.	.	.	144,000	1,550,000
1876–79	.	.	.	26,000	300,000

The imports of minor articles were as follows :—

	1860	1872	1880	1887
Cocoa, tons	4,000	6,000	8,000	7,000
Sugar ,,	32,000	35,000	44,000	53,000
Fish ,,	20,000	34,000	28,000	46,000
Value, £	2,000,000	2,000,000	2,200,000	2,900,000

The imports and exports of live cattle in recent years were equal. The food exports were as follows :—

	1860	1872	1880	1887
Wine, mill. galls.	22	44	138	183
Oil ,,	1	5	4	3
Fruit, tons . .	...	120,000	150,000	160,000
Salt ,, . .	...	220,000	320,000	220,000
Aggreg. value, £	3,400,000	9,600,000	12,400,000	13,800,000

PORTUGAL

The production of grain and meat was as follows :—

Year	Tons		Lbs. per Inhabitant	
	Grain	Meat	Grain	Meat
1828	520,000	70,000	340	46
1868	770,000	77,000	410	41
1886	1,000,000	95,000	510	49

There is a constant deficit of grain, but a small surplus of meat for exportation. The imported food averaged thus :—

	Tons Yearly		Lbs. per Inhabitant	
	1872–75	1884–87	1872–75	1884–87
Grain . .	42,000	135,000	22	69
Rice . . .	8,500	14,000	4	7
Sugar . .	16,000	24,000	8	12
Coffee . .	2,000	2,500	15 oz.	18 oz.
Fish . . .	16,000	22,000	8 lbs.	11 lbs.

Exports of food averaged as follows :—

	Yearly	
	1872–75	1884–87
Wine, gallons . . .	11,200,000	31,400,000
Oil ,, . . .	900,000	230,000
Fruit, tons . . .	440,000	130,000
Meat ,, . . .	4,000	1,300
Salt ,, . . .	230,000	120,000

The consumption of food per inhabitant is about 500 lbs. grain, 48 lbs. meat, 11 lbs. fish, 12 lbs. sugar, and 14 gallons of wine.

The weight and value of grain consumed for food in 1887 were :—

	Tons	Value, £
Wheat . . .	300,000	2,400,000
Rye . . .	300,000	1,800,000
Other grain .	300,000	1,700,000
Total .	900,000	5,900,000

SWEDEN

The production of grain and meat was as follows :—

Year	Tons		Lbs. per Inhabitant	
	Grain	Meat	Grain	Meat
1837	350,000	106,001	280	78
1886	2,510,000	140,000	1,100	62

There is a surplus of grain, the net exports averaging as follows per annum :—

Period	Tons
1860–64	205,000
1876–80	290,000
1882–86	140,000

The meat-supply is sufficient and no more, the export of live cattle being equivalent to 10,000 tons of meat yearly, which is just the quantity of pork ordinarily imported. There is a constant surplus of butter, the export of which has increased of late years, the annual average showing :—

Period	Tons
1876–80	4,000
1883–86	10,500

The consumption of imported articles shows thus :—

	Tons Yearly			Lbs. per Inhabitant		
	1860–62	1870–72	1884–86	1860–62	1870–72	1884–86
Coffee .	7,000	8,500	15,000	4	4	7
Rice . .	1,400	2,200	9,200	1	1	4
Sugar .	18,000	21,000	47,000	10	11	22
Salt . .	40,000	55,000	64,000	22	30	28

The weight and value of grain used for food in 1887 were approximately as follows :—

	Tons	Value, £
Wheat	300,000	2,100,000
Rye	700,000	4,600,000
Other grain . .	200,000	1,200,000
Total .	1,200,000	7,900,000

NORWAY

The production of grain and meat was as follows :—

Year	Tons		Lbs. per Inhabitant	
	Grain	Meat	Grain	Meat
1835 . . .	170,000	44,000	320	80
1855 . . .	370,000	64,000	540	95
1875 . . .	400,000	67,000	470	78

The net importation of grain has been as follows :—

Period	Tons Yearly	Lbs. per Inhabitant
1861–70 . . .	145,000	200
1871–80 . . .	205,000	245
1881–87 . . .	220,000	240

The only food exported is fish, the average showing thus :—

Period	Tons Yearly	Value, £
1861–70 . .	124,000	...
1871–80 . .	123,000	1,900,000
1881–87 . .	135,000	1,950,000

The consumption of some articles of importation was :—

	Tons Yearly		Lbs. per Inhabitant	
	1860–62	1885–87	1860–62	1885–87
Coffee . .	5,000	7,300	7	9
Sugar . . .	5,500	11,000	7	13
Meat . . .	400	6,000	...	7
Salt . . .	69,000	80,000	84	92

Potatoes are much used, the consumption averaging 500 lbs. per inhabitant, all home-grown.

The weight and value of grain consumed in 1887 were approximately :—

	Tons	Value, £
Wheat . . .	100,000	800,000
Rye . . .	200,000	1,300,000
Other grain .	100,000	600,000
Total .	400,000	2,700,000

DENMARK.

The production of grain and meat was as follows :—

Year	Tons		Lbs. per Inhab.	
	Grain	Meat	Grain	Meat
1866 . . .	1,750,000	98,000	2,280	127
1886 . . .	2,150,000	115,000	2,400	128

The net exports of grain and meat averaged thus :—

Period	Tons Yearly	
	Grain	Meat
1865–70	263,000	17,000
1875–80	185,000	38,000
1883–87	...	58,000

In the last period of five years there was an average importation of 10,000 tons grain yearly over and above exports. Instead of growing more than her needs, Denmark has now to rely partly on imported grain. Butter is largely exported, viz. :—

Year	Tons
1874	13,000
1887	24,000

So far back as 1830 Denmark exported 5000 tons of butter and 9000 tons of cheese.

The consumption of imported articles was as follows :—

	Tons Yearly		Lbs. per Inhab.	
	1865–67	1885–87	1865–67	1885–87
Coffee . .	6,300	8,500	9	9
Sugar . .	16,400	21,000	22	22
Rice . . .	4,000	14,000	5	14
Salt . . .	14,500	25,000	19	25

The consumption of potatoes averages 410 lbs. per inhabitant.

The weight and value of grain used for food in 1887 were approximately thus :—

	Tons	Value, £
Wheat	200,000	1,600,000
Rye	400,000	2,400,000

HOLLAND

The production of grain and meat was approximately as follows :—

Year	Tons		Lbs. per Inhabitant	
	Grain	Meat	Grain	Meat
1828	400,000	96,000	290	70
1860	600,000	104,000	360	62
1884	1,000,000	125,000	550	69

Holland has never grown enough grain for her requirements, the net imports averaging yearly as follows :—

	Tons	Value, £
1861–70	180,000	2,400,000
1871–80	370,000	3,400,000
1881–87	460,000	4,400,000

The other food imports show as follows, net, per annum :—

	Tons		Lbs. per Inhabitant	
	1861–63	1885–87	1861–63	1885–87
Coffee . .	13,000	27,000	9	15
Sugar . .	17,000	18,000	12	10
Rice . . .	24,000	75,000	17	40
Lard . . .	...	62,000	...	34

Holland produces about 45,000 tons of beet-sugar per annum, so that the consumption of sugar is about 63,000 tons, or 35 lbs. per inhabitant. The consumption of lard is supposed to be in great measure for making butter or oleo-margarine.

The exports of food are as follows :—

	Tons Yearly		Value, £	
	1861–63	1885–87	1861–63	1885–87
Meat . . .	14,000	20,000	700,000	1,050,000
Butter . .	16,000	71,000	1,050,000	4,500,000
Cheese . .	28,000	32,000	800,000	900,000

The consumption of potatoes is 820 lbs. per inhabitant yearly.

The weight and value of grain used for food in 1887 were approximately thus :—

	Tons	Value, £
Wheat . . .	500,000	4,000,000
Rye	400,000	2,800,000
Other grain . . .	200,000	1,200,000
Total . .	1,100,000	8,000,000

BELGIUM

The production of grain and meat was approximately thus :—

Year	Tons		Lbs. per Inhabitant	
	Grain	Meat	Grain	Meat
1828	820,000	70,000	530	45
1856	1,720,000	90,000	970	51
1866	1,750,000	106,000	890	54
1886	1,850,000	110,000	750	43

The net imports of grain have averaged thus :—

Period	Tons Yearly	Lbs. per Inhabitant
1861–70 . .	270,000 ...	140
1871–80 . .	860,000 ...	380
1881–87 . .	1,230,000 ...	505

It appears that 40 per cent. of the grain consumed is imported from other countries.

The imports of meat averaged thus :—

Period	Tons Yearly	Lbs. per Inhabitant
1861–70 . .	12,000 ...	7
1871–80 . .	61,000 ...	27
1881–87 . .	56,000 ...	22

Minor articles of import are as follows :—

	Quantity Yearly		Per Inhabitant	
	1860–62	1885–87	1860–62	1885–87
Coffee, tons	20,000	24,000	12 lbs.	9 lbs.
Wine, galls.	2,600,000	8,700,000	0.6	1.5

Butter and sugar are exported, the averages showing thus :—

	1860–62	1870–72	1885–87
Butter, tons . .	...	4,500	4,200
Sugar ,, . .	1,700	56,000	62,000

The production of beet-sugar is 130,000 tons yearly, the consumption about 70,000 tons, or 27 lbs. per inhabitant. Potatoes are largely used, the average being 1050 lbs. yearly per inhabitant.

The weight and value of grain used for food in 1887 were approximately thus :—

	Tons	Value, £
Wheat	800,000	6,800,000
Rye	600,000	4,200,000
Other grain . . .	200,000	1,200,000
Total . .	1,600,000	12,200,000

SWITZERLAND

The consumption of grain and meat in the years 1883–87 averaged as follows :—

	Tons			Lbs. per Inhabitant		
	Native	Im-ported	Total	Native	Im-ported	Total
Grain .	450,000	390,000	840,000	330	300	630
Meat .	68,000	15,000	83,000	51	11	62

The importation of grain is more than treble what it was before 1855, viz. :—

Period	Tons per Annum	Lbs. per Inhabitant
1851–55 . . .	120,000	103
1876–80 . . .	320,000	231
1883–87 . . .	390,000	300

Three-fourths of the imported grain is wheat, the remainder maize and oats. Other imported articles in the same years averaged :—

	Quantity	Lbs. per Inhab.
Coffee, tons .	9,200	7
Sugar, ,, . .	34,000	26
Rice ,, . .	6,800	5
Wine, gallons .	12,000,000	galls. 4

Cheese and condensed milk are exported, the average being :—

	Tons Yearly	Value, £
Cheese . . .	26,000	1,600,000
Milk . . .	13,000	480,000

The consumption of wine averaged 14 gallons yearly per inhabitant.

GREECE

The consumption of grain and meat averaged thus :—

	Tons			Lbs. per Inhabitant		
	Native	Im-ported	Total	Native	Im-ported	Total
Grain .	450,000	130,000	580,000	560	170	730
Meat .	43,000	4,000	47,000	50	5	55

The ordinary consumption of sugar is 4000 tons, and of coffee 800 tons yearly, being respectively as 5 lbs. and 1 lb. per inhabitant. The only food exports are :—

	Quantity	Value, £
Fruit, tons . .	140,000	1,520,000
Oil, gallons .	2,100,000	210,000
W ne, ,, .	1,500,000	50,000

The consumption of wine averages 18 gallons per inhabitant.

ROUMANIA

The production of grain and meat is approximately thus :—

	Tons	Lbs. per Inhabitant
Grain .	3,000,000	1,250
Meat	280,000	110

The average export of grain in the years 1882–86 was :—

	Tons Yearly	Value, £
Wheat	360,000	2,500,000
Barley	240,000	850,000
Rye	85,000	400,000
Maize	640,000	2,600,000
Total . .	1,325,000	6,350,000

The exportation of cattle is not known, but may be estimated as equal to one-fourth of the meat product, say 70,000 tons yearly. This would leave the consumption thus :—

	Tons	Lbs. per Inhabitant
Grain	1,680,000	650
Meat	210,000	82

These ratios seem very high, but they are based on the tables of the *Statistique Agricole*. The consumption of sugar is only 4 lbs., and of coffee 8 oz. yearly per inhabitant.

SERVIA

The production of grain and meat is approximately thus :—

	Tons	Lbs. per Inhabitant
Grain	370,000	420
Meat	100,000	112

The export of grain, says Spallart, averages 40,000 tons ; the meat surplus is probably 25,000 tons per annum.

EGYPT

The average food exports in the years 1883–87 were:—

	Value, £	Tons, Approximately
Grain . . .	1,010,000	200,000
Sugar . . .	460,000	33,000

The imports and exports of rice are about equal.

UNITED STATES

The production of the principal articles of food was :—

Year	Tons						
	Grain	Meat	Sugar	Rice	Potatoes	Butter	Cheese
1840	15,400,000	2,050,000	70,000	36,000	2,700,000	...	...
1850	21,700,000	2,390,000	110,000	96,000	2,600,000	140,000 .	74,000
1860	31,000,000	2,890,000	120,000	83,000	2,800,000	205,000	47,000
1870	34,700,000	2,480,000	74,000	33,000	3,600,000	230,000	68,000
1880	67,500,000	4,120,000	110,000	50,000	4,200,000	350,000	120,000
1886	71,100,000	4,750,000	110,000	50,000	4,200,000	430,000	170,000

Some of the above articles were produced in excess of requirements for home use, the quantities and values exported being thus :—

Period	Tons Yearly			Value, £		
	Grain	Meat	Butter and Cheese	Grain	Meat	Butter and Cheese
1821–30	150,000	10,000	1,000	1,200,000	300,000	40,000
1831–40	160,000	14,000	1,000	1,060,000	420,000	40,000
1841–50	370,000	40,000	6,000	3,120,000	1,040,000	210,000
1851–60	710,000	60,000	8,000	6,100,000	1,800,000	300,000
1861–70	1,200,000	100,000	40,000	9,400,000	3,300,000	1,550,000
1871–80	3,700,000	390,000	60,000	27,100,000	12,600,000	2,800,000
1881–87	5,020,000	510,000	72,000	38,100,000	20,200,000	3,900,000

The disposal of the grain crops since 1840 was approximately as follows :—

Period	Millions of Bushels Yearly				
	Crop	Seed	Exported	Home Use	Total
1841–50	740	74	15	652	740
1851–60	1,050	105	29	916	1,050
1861–70	1,210	121	48	1,041	1,210
1871–80	1,980	198	148	1,634	1,980
1881–87	2,700	270	200	2,230	2,700

The disposal of wheat crop was as follows approximately :—

Period	Millions of Bushels Yearly				
	Crop	Seed	Exported	Home Use	Total
1841–50	93	9	10	74	93
1851–60	137	14	24	99	137
1861–70	194	20	38	136	194
1871–80	338	34	85	219	338
1881–87	440	44	134	262	440

The disposal of the maize crop was approximately thus :—

Period	Millions of Bushels Yearly				
	Crop	Seed	Exported	Home Use	Total
1841–50	485	48	5	432	485
1851–60	715	72	5	638	715
1861–70	965	97	10	858	965
1871–80	1,400	140	54	1,206	1,400
1881–87	1,602	160	53	1,389	1,602

The disposal of oats, rye, barley, buckwheat, &c., was as follows :—

Period	Millions of Bushels Yearly				
	Crop	Seed	Exported	Home Use	Total
1841–50	162	16	...	146	162
1851–60	198	20	...	178	198
1861–70	51	5	...	46	51
1871–80	242	24	9	209	242
1881–87	658	66	13	579	658

The consumption of food compared with population was as follows :—

Year	Lbs. per Inhabitant					
	Wheat	Other Grain	Meat	Sugar	Potatoes	Butter and Cheese
1840 . .	240	1,400	260	19	360	...
1850 . .	220	1,510	224	20	265	20
1860 . .	260	1,540	202	34	200	18
1870 . .	244	1,620	140	41	202	14
1880 . .	320	1,870	157	40	190	18
1887 . .	250	1,610	155	53	170	20

Native sugar only forms 7 per cent. of what is consumed. The importation of coffee and tea has been as follows :—

	Tons Yearly			Lbs. per Inhabitant		
	1861–63	1871–73	1885–87	1861–63	1871–73	1885–87
Coffee	58,000	134,000	250,000	4.0	7.4	9.3
Tea .	11,000	27,000	36,000	0.8	1.5	1.4

The meat product of the United States was approximately as follows :—

Year	Tons				Lbs. per Inhabitant
	Beef	Mutton	Pork	Total	
1840	662,000	172,000	1,286,000	2,120,000	280
1850	790,000	193,000	1,477,000	2,460,000	240
1860	1,140,000	200,000	1,630,000	2,970,000	215
1870	1,060,000	253,000	1,230,000	2,540,000	150
1880	1,590,000	312,000	2,338,000	4,240,000	190
1888	2,190,000	390,000	2,190,000	4,750,000	178

It may be seen that the rapid increase of population causes the surplus of meat to diminish. As soon as the production falls to 120 lbs. per inhabitant, there will be no meat to export.

The Americans are the best fed people in the world, and contribute in a great measure to the abundance and cheapness of food in other countries, their share of production being shown thus :—

	Tons Grain Grown Yearly			Tons of Meat Produced Yearly		
	1841–50	1861–70	1881–87	1841–50	1861–70	1881–87
United States . . .	18,500,000	30,300,000	67,700,000	2,200,000	2,680,000	4,400,000
Europe	90,500,000	111,000,000	132,000,000	6,380,000	6,950,000	7,740,000
Colonies, &c. . . .	9,200,000	15,700,000	22,500,000	220,000	390,000	920,000
Total . .	117,200,000	157,000,000	222,200,000	8,800,000	10,020,000	13,060,000

It appears, therefore, that the United States produce 30 per cent. of the grain, and 33 per cent. of the meat of the world.

CANADA

The production of grain and meat was approximately as follows :—

Year	Tons Yearly		Lbs. per Inhabitant	
	Grain	Meat	Grain	Meat
1852	1,120,000	140,000	1,020	128
1873	1,850,000	220,000	1,030	126
1887	3,720,000	260,000	1,680	116

There has been of late years a surplus of grain and other articles, the net exports averaging yearly as follows :—

	1875–78	1882–84	1885–87
Grain, tons . .	175,000	405,000	410,000
Meat ,, . .	21,000	42,000	57,000
Butter ,, . .	5,500	4,800	3,100
Cheese ,, . .	16,500	31,000	39,000
Fish ,, . .	64,000	77,000	71,000
Potatoes ,, . .	21,000	58,000	39,000
Eggs, millions .	53	142	152

The consumption of imported food was thus :—

	Tons Yearly		Lbs. per Inhabitant	
	1875–77	1885–87	1875–77	1885–87
Sugar . .	68,000	102,000	37.0	45.0
Tea	6,000	9,000	3.4	4.1
Salt . . .	72,000	87,000	39.0	38.0

The ordinary consumption of wheat is 350 lbs. per inhabitant, and of meat 90 lbs., per annum.

AUSTRALIA

The production of grain and meat was approximately thus :—

Period	Tons Yearly		Lbs. per Inhabitant	
	Grain	Meat	Grain	Meat
1831–40 . .	60,000	40,000	440	300
1851–60 . .	250,000	140,000	500	300
1881–87 . .	1,550,000	450,000	1,100	300

Food exports have averaged yearly as follows :—

	1875–77	1885–87
Grain, tons . .	125,000	150,000
Meat, ,, . .	9,000	34,000

According to Mr. Coghlan, Government statist, the consumption of food averages as follows :—

	Wheat	Rice	Potatoes	Sugar	Tea	Meat	Tobacco
New South Wales .	.	405	12	215	94	8.2	249	3.4
Victoria . . .	384	15	282	100	7.2	265	2.7
New Zealand .	...	9	412	78	6.7	...	2.0
Tasmania . .	371	9	389	86	6.4	...	1.8
South Australia .	...	5	195	87	6.4	...	2.1
Queensland . .	366	24	250	59	8.7	370	3.5
Australasia . .	374	13	279	89	7.5	276	2.8

	Gallons Yearly per 100 Inhabitants			
	Wine	Beer	Spirits	Equivalent in Alcohol
New South Wales .	80	1,170	110	290
Victoria . .	110	1,940	120	410
New Zealand . .	20	770	80	180
Tasmania . .	20	970	60	190
South Australia .	160	1,410	50	280
Queensland . .	60	980	180	320
Australasia . .	80	1,230	100	290

The consumption of imported articles was as follows :—

	Tons Yearly		Lbs. per Inhabitant	
	1875–77	1885–87	1875–77	1885–87
Tea . . .	8,200	11,500	7.5	8.1
Sugar . . .	82,000	110,000	75.0	77.0

The sugar was not imported wholly from abroad, Queensland supplying 5 per cent. in the first, and 36 per cent. in the second period.

ARGENTINA

The production of grain and meat was approximately thus :—

Period	Tons		Lbs. per Inhabitant	
	Grain	Meat	Grain	Meat
1831–40 . .	50,000	50,000	200	200
1851–60 . .	120,000	100,000	280	220
1881–87 . .	850,000	300,000	600	220
1889 . . .	1,510,000	320,000	910	200

The surplus food for exportation was as follows :—

Year	Tons	
	Grain	Meat
1873	2,300	35,000
1883	108,400	39,000
1889	350,000	60,000

The Republic grows 80,000 tons sugar and 6 million gallons of wine, which is about half the quantity consumed of the former and one-fifth of the latter.

FORESTS

Forests cover about 10 per cent. of the earth's landed area, and 25 per cent. of Europe. The highest yield is in the United Kingdom, namely, 60 cubic feet of timber per acre, whereas in Brazil it is about one cubic foot. The terms used in measurement are :—

Load, 50 cubic feet. | Klafter, 2 tons or 200 fagots.
Stère, 35 cubic feet. | Cord, 2½ tons or 125 cubic feet.

The ordinary cutting in Europe (except Russia) is 5 acres per 100 of forest. An acre of forest, if cut down, would produce about 1000 cubic feet of timber.

The annual felling of timber is hardly half what it might be, without reducing the forest resources of the world. The average shown above is only 17 cubic feet per acre, the ordinary yield available being from 30 to 40 cubic feet. It appears, however, that forests within easy reach are sufficiently developed, while those more remote of Canada, Brazil, and Gran Chaco have not yet been brought into much use.

The forests of the world may be summed up approximately thus :—

	Millions of Acres	Product, Million Cubic Feet	Cubic Feet per Acre	Value of Product, £
Russia	426	6,200	15	40,800,000
United States .	466	9,300	20	112,000,000
Brazil	135	150	1	1,000,000
Canada . . .	64	650	5	8,200,000
Sweden and Norway . . }	61	900	15	12,000,000
Austria-Hungary	46	2,000	45	18,000,000
Gran Chaco . .	37	40	1	500,000
Germany . . .	32	1,300	40	13,000,000
France	21	1,100	50	10,000,000
Italy	10	440	44	4,000,000
Algeria	6	120	20	1,000,000
Switzerland . .	2	140	70	1,200,000
United Kingdom	2	120	60	2,000,000
Total . .	1,308	22,460	17	223,700,000

The following table shows the average yield of firewood per acre of forest, according to the age of the trees :—

Age of Trees, Years	Cubic Feet	Age of Trees, Years	Cubic Feet	Age of Trees, Years	Cubic Feet
10	700	50	6,200	150	12,800
20	1,800	60	7,500	200	13,400
30	3,300	80	9,200	250	12,000
40	4,900	100	10,000	300	11,000

The following tables refer to the principal kinds of forest trees :—

	Density	Cohesion	Strength
Acacia	0.717	7.93	...
Alder	0.601	4.54	...
Ash	0.697	6.78	983
Aspen	0.602	7.20	...
Beech	0.823	3.57	...
Birch	0.812	4.30	672
Fir	0.493	4.18	585
Maple	0.674	3.58	...
Oak	0.808	6.49	1,000
Pine	0.559	2.48	565
Poplar	0.477	1.97	538
Sycamore . . .	0.692	6.16	744

The following scale serves to ascertain the age of trees :—

Age, Years	Inches Diameter				
	Oak	Larch	Elm	Spruce	Yew
10 . . .	5	4	1	4	1
20 . . .	10	9	5	8	2
30 . . .	14	14	10	12	3
50 . . .	23	24	23	19	4
70 . . .	32	33	36	24	6
100 . . .	41	40	50	27	9
150 . . .	54	50	61	36	14
200 . . .	64	58	71	44	20
250 . . .	74	67	83	52	25
300 . . .	84	75	94	60	30

Eucalyptus or Australian gum-tree sometimes grows 24 feet in three months ; bamboo, 2 feet in twenty-four hours.

The maximum age to which trees of different kinds arrive is shown as follows :—

	Years			Years			Years
Palm . . .	250	Lemon . .	640	Spruce . .	1,200
Elm . . .	355	Plane . .	720	Oak . .	1,600
Cypress . .	388	Cedar . .	800	Olive . .	2,000
Ivy . . .	448	Chestnut . .	860	Yew . .	2,880
Maple . .	516	Walnut . .	900	Baobab .	5,100
Larch . .	576	Lime . . .	1,076	Dragon .	5,900

The Crown forests of various countries are as follows :—

	Area, Acres	Product, £	Pence per Acre
Russia . . .	180,000,000	10,000,000	13
India . . .	35,500,000	...	...
Sweden and Norway	10,300,000	1,500,000	35
Germany . . .	9,400,000	3,700,000	95
Austria . . .	7,500,000	1,500,000	48
France . . .	2,110,000	1,700,000	180
Italy . . .	500,000	200,000	96
Belgium . . .	100,000	40,000	96

Besides the foregoing, there are communal forests, the area of which is not easily ascertained.

The following table shows approximately the consumption of all kinds of timber and firewood in the various countries, and the quantities of timber imported or exported.

	Millions of Cubic Ft. Consumed Yearly			Cubic Ft. Consumed per Inhab.	Millions of Cubic Ft.	
	Firewood	Building, &c.	Total		Imported	Exported
U. Kingdom .	60	470	530	14	390	...
France . . .	800	500	1,300	35	200	...
Germany . . .	700	600	1,300	28	...	...
Russia . . .	4,500	1,600	6,100	70	...	120
Austria . . .	1,200	700	1,900	50	...	100
Italy	240	240	480	18	40	...
Spain and Portugal . }	110	150	260	13	60	...
Belgium and Holland . }	20	90	110	12	40	...
Sweden and Norway . }	320	300	620	92	...	200
United States .	3,000	6,000	9,000	150	...	160
Canada . . .	300	200	500	100	...	150
Total . .	11,250	10,850	22,100	40	730	730

UNITED KINGDOM

The consumption of timber has been as follows :—

Year	Millions of Cubic Ft.			Cubic Ft. per Inhabitant	Per Load (50 Cubic Ft.)	
	British	Imported	Total		Duty	Price
					s.	s.
1790	106	11	117	8	7	70
1803	110	12	122	8	25	90
1811	110	14	124	7	55	185
1820	115	22	137	7	65	160
1830	115	28	143	6	55	150
1840	115	41	156	6	55	150
1850	120	85	205	8	7	70
1860	120	145	265	9	4	68
1870	130	252	382	12	...	65
1880	140	290	430	12	...	50
1889	140	392	532	14	...	42

The most remarkable planters in the United Kingdom are :—

Planter	Locality	No. of Trees	Area, Acres
Duke of Athol .	Dunkeld	28,000,000	16,600
Earl of Seafield .	Inverness	60,000,000	40,000
Lord Powerscourt	Wicklow	3,000,000	1,000

The last-mentioned began in 1869, and his outlay has averaged 66s. per acre ; he expects after 1894 to get a return of 8s. per acre, and that in 1915 the plantation will be worth £50 an acre.

The largest forests in England are New Forest, 67,000 acres, and Dean Forest, 23,000.

FRANCE

France has been steadily increasing her forests in the last forty years, their area being now 7 million acres more than in 1848. In that interval no less than 9 million acres of waste mountain lands have been planted, the increase of urban population causing a great demand for firewood, the consumption of which averages 23 cubic feet per inhabitant. In 1868 the area and product of forests was as follows :—

	Acres	Product, £
State.	2,110,000	1,720,000
Private	15,950,000	8,580,000
Total . .	18,060,000	10,300,000

The product was made up approximately thus :—

	£
800 million cubic feet firewood . .	4,000,000
300 ,, ,, ,, timber . . .	6,300,000

Paris requires one million acres for her supply of fire-wood, as she consumes the equivalent of 50,000 acres yearly, say 1000 acres each week. France is obliged to import 200 million cubic feet of timber yearly, her forests being insufficient for her requirements. The Government has planted largely in Algeria : at Lake Fetzara, on an area of 130,000 acres, 12,700,000 Australian gum-trees.

GERMANY

The forest area is as follows :—

	Acres
Prussia	17,800,000
Bavaria	5,900,000
Other States	8,600,000
Total . .	32,300,000

German forests produce 40 cubic feet per acre, those belonging to the Crown forming 30 per cent. of the total. In Prussia the average yield is only 30 cubic feet, but in Bavaria it rises to 45 feet per acre. The consumption of firewood for the whole of Germany averages 15 cubic feet per inhabitant. The value of product is :—

	£
700 million cubic feet firewood . .	3,000,000
600 ,, ' ,, ,, timber . . .	10,000,000

The forest area has been reduced by two million acres in Prussia since the breaking up of the nobles' estates in 1850–59.

RUSSIA

Forests are steadily diminishing with the increase of population, and especially since the emancipation of the serfs. No less than 101 million acres of forest have been cleared since 1872 according to official returns, being at the rate of 7 million acres yearly. In 1860 the Crown forests covered 333 million acres, and in 1878 according to Strebinski they comprised only 180 million acres ; but of course the emancipation transferred (see *Lands*) several millions to the serfs.

The Czar has 27,000 wood-police, who cut each 150 fagots, or 1½ ton of wood (mostly firewood) daily ; say 450 tons per policeman yearly, the product per man being valued at £45 sterling. These men, for example, felled 670 million cubic feet in 1872, and 540 million in 1878 ; we have no later dates. The foregoing applies merely to 30 million acres of forest, the personal property of the Czar, besides which the Crown or Exchequer owns 150 million acres, the yield of which may be estimated at 2000 million cubic feet. The product of Crown forests averages only 1s. per acre yearly, that of private or communal forests 30d., viz. :—

	Million Acres	Product, £.
Crown forests . . .	180	10,000,000
Private and communal .	246	30,800,000
	426	40,800,000

Bushen estimated the product of Russian forests in 1864 at £24,000,000 sterling.

The consumption of firewood is estimated at one ton or 50 cubic feet per inhabitant, a ton being composed of 100 fagots, and worth about a silver rouble or 3s. per ton. At St. Petersburg, according to Simmonds, the consumption is much greater, reaching 3,000,000 tons yearly, or nearly 200 cubic feet per inhabitant. In 1882 the value of all wood and timber was approximately :—

	Tons	Value, £
Firewood	90,000,000	13,600,000
Exported by land and water . } Used for building, &c. . . . }	34,000,000	{ 5,600,000 { 21,600,000
Total . . .	124,000,000	40,800,000

In 1878 the forests were held approximately thus :—

	Million Acres
Crown	180
Nobles, &c.	284
Peasants	21
Total . . .	485

In 1881 the total area was estimated at 426 million acres.

AUSTRIA-HUNGARY

In Austria-Hungary nearly one-fourth of the forests belongs either to the Crown or the Church, the clergy of Hungary holding 1,500,000 acres.

The yield varies from one to two stères ; average 45 cubic feet per acre. Value of product approximately as follows :—

	£
1200 million cubic feet firewood . .	4,000,000
800 ,, ,, ,, timber . .	14,000,000

About one-eighth of the timber is exported.

The forest area of Austria is 46,100,000 acres, viz. :—

	Acres		Acres
Hungary . . .	13,420,000	Bohemia . . .	3,240,000
Transylvania .	6,550,000	Tyrol	2,200,000
Galitzia . . .	5,730,000	Other provinces	14,960 000

ITALY

Italian forests show an average product of 44 cubic feet per acre, more than half of which goes in firewood, the rest to the carpenters, viz. :—

	£
240 million cubic feet firewood . .	1,000,000
200 ,, ,, ,, timber . .	4,000,000

The price of forest land averages £13 per acre.

The consumption of firewood is 8 cubic feet per inhabitant. The supply of timber is short, Italy having to import 40 million cubic feet yearly.

SWEDEN AND NORWAY

Sweden and Norway produce about 900 million cubic feet, the felling of which employs 40,000 woodcutters. One-third is used for firewood, the rest made into timber for building, &c., of which 200 million cubic feet are exported. Of the total production, two-thirds correspond to Sweden, one-third to Norway.

BELGIUM

The total forest area is 1,220,000 acres, including 80,000 that belong to the State, and 340,000 to Communes, the rest being private estates. Annual product 70 millions cubic feet, which yields about 7s. an acre.

UNITED STATES

The value of timber and firewood consumed yearly is shown approximately as follows :—

	Value, £	
	1870	**1880**
Firewood	15,000,000	20,000,000
Fences	30,000,000	40,000,000
Sleepers, furniture, &c.	28,000,000	48,000,000
Export	4,000,000	4,000,000
Total	77,000,000	112,000,000

About 30,000 acres of timber are felled daily, the sawmills of Maine consuming 50 million feet, those of Michigan 80 million feet monthly. In 1880 the Union counted 25,700 sawmills, with 141,600 hands, whose wages reached £6,700,000 yearly, turning out 18,000 million linear feet of boards, valued at £48,000,000 sterling. The consumption of wood for manufactures is enormous. Even trifling articles of use enter largely into the annual consumption. For example, the Harbour Springs factory turns out 8,000,000 wooden toothpicks daily. Minneapolis requires 2,000,000 barrels yearly for its flour-mills.
The forest area is distributed as follows :—

States	Acres	States	Acres
New England	19,000,000	Southern	233,000,000
Middle	18,000,000	West	196,000,000

Making up a total of 466 million acres.

CANADA

The annual production averages 70 million logs, equal to 560 million cubic feet, and 190,000 masts. The total value is £8,200,000, home use £4,000,000, exportation £4,200,000.

INDIA

Excluding Bengal and Upper Burmah, there are 45 million acres of forest (see p. 56).

AUSTRALIA

According to Simmonds, the forest area is :—

	Acres
New South Wales	3,760,000
Tasmania	4,000,000
Western Australia	19,200,000
Victoria	25,600,000
New Zealand	12,100,000
Total	64,660,000

He adds that in New Zealand it is being rapidly diminished.

FORTIFICATIONS

Louis Philippe spent 16 millions sterling on forts, especially the *enceinte* of Paris. Lord Palmerston spent 7½ millions on the coast fortifications begun by him in 1860. The German Government has spent 2½ millions in military works around Strasburg. The site occupied by the Paris fortifications is 3900 acres, and was valued in 1840 at £140 an acre ; it is now about to be sold for £700 an acre, on the levelling of the forts.

FREIGHT

The carrying trade of the world has been prodigiously developed since the introduction of railways and steamboats. Down to the year 1850, when the Continent of Europe had only 7600 miles of railway, the ordinary cost of land-carriage for goods was £3 a ton per 100 miles, or six times what it is at present. Freight by sea then averaged over 40s. a ton, or more than double what it is now. The following table shows approximately the tonnage borne by rail and shipping at various dates :—

Year	Millions of Tons		
	Rail	Shipping	Total
1830	3	24	27
1840	16	30	46
1850	97	37	134
1860	193	48	241
1870	602	64	666
1875	715	80	795
1880	893	112	1,005
1887	1,358	139	1,497

The saving to the people of Prussia alone, in having their merchandise carried by rail, was estimated in 1878 at 120 millions sterling per annum ; this would imply that the saving in 1887 for all nations (per annum) was as follows :—

	Tons		Millions £ Saved
Europe	752	...	1,128
United States	552	...	828
Colonies	54	...	81
Total	1,358		2,037

This saving may be considered approximately correct, and is equal to 80 per cent. of the total annual expenditure for food (see *Food*) by the nations comprised above. Nevertheless, the cost of railway carriage for goods is by no means uniform ; the averages in 1885 showed thus :—

Cost per 100 Miles, Pence per Ton

U. States	63	Italy	108	G. Britain	135
Belgium	70	Austria	111	France	154
Germany	84	Holland	118	Sweden	160

In 1888 the railways of the United Kingdom carried about 260 million tons of merchandise, the average haulage being supposed to be 30 miles : the freight charged was £38,800,000, equal to 120d. per 100 miles. This is precisely the rate charged on the London and North-Western line for carrying meat from Liverpool to London.
American railways have reduced their charges more than 50 per cent. in twenty years, viz. :—

Railways of United States, Charge per Ton 100 Miles

Year	£	s.	d.	Year	£	s.	d.
1865	0	17	2	1880	0	7	4
1870	0	11	9	1885	0	5	4

The cost of sending a ton of grain from Chicago to Liverpool *via* New York was as follows :—

Year	Chicago to New York		New York to Liverpool	Chicago to Liverpool, Water-Route
	By Water	By Rail		
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1868	2 2 0	3 10 0	1 3 0	3 5 0
1873	1 12 0	2 16 0	1 15 0	3 7 0
1880	1 1 0	1 12 0	1 0 0	2 1 0
1884	0 12 0	1 1 0	0 12 0	1 4 0

The above charge for 1884 was equal to 7d. per bushel, and even lower rates have prevailed since then. The charge from Chicago to Liverpool fell 63 per cent. in the above interval of sixteen years. In 1888 the charges from Chicago to European ports per ton were as follows :—

Chicago to	Shillings per Ton	
	Bacon	Flour
Liverpool	37	31
London	35	32
Hamburg	44	37
Antwerp	43	36

The freights current for ocean routes in 1888 were :—

Route	Shillings per Ton	Miles	Pence per 1000 Miles
London to Singapore . .	25	8,400	36
London to Australia . .	27	11,000	30
London to San Francisco .	30	14,000	26
London to Cape Town .	40	6,000	80
Newcastle to Bombay . .	22	6,500	40
Antwerp to Rio Janeiro .	36	5,400	80
China to New York . . .	45	14,000	39

This gives a general average of 37d. per thousand miles of ocean freight, against 90s. by railway; that is, the latter costs thirty times the former. The President of Civil Engineers in his inaugural speech for 1890 stated that in 1870 it cost £25 to send a ton of merchandise from London to Sydney, which now costs only 30s., a fall of 94 per cent. He added that in 1820 the conveyance of cotton bales from Liverpool to Manchester, thirty miles, cost 40s. a ton, which is now done at 7s., a fall of 82 per cent. With reference to the Manchester ship-canal, it was stated in 1889 that the railway charges between Manchester and Liverpool were still excessive, the freight on a ton of merchandise being as follows :—

Liverpool to Bombay . . . 10 shillings
Liverpool to Manchester . . 12 ,,

The countries which import fruit are the following :—

The ordinary expense of carrying goods in 1884 in all countries was estimated thus :—

Shillings per Ton, 1000 Miles

By sea . . . . 5 | By railway . . . 100
,, canal . . . 20 | ,, highroad . . 300

There is not much difference between the freight paid by waggon on highroads in France and that charged by caravans across Central Africa. Thus, a camel-load of 600 lbs. from Berber to Suakim (280 miles) costs 25s., which is equal to 33s. a ton per 100 miles, 10 per cent. over the ordinary charge by waggon in Europe. The effects of freight on prices are shown by the fact that Athens imports wheat from Odessa because land-carriage in the interior of Greece is £10 a ton per 100 miles, and consequently it is cheaper to consume Russian wheat.

Brazilian railways still charge enormous freights—coffee, for example, paying 550d. per 100 miles, or nine times as much as in the United States. Even freight by water in Brazil is dear, the Brazilian steamers charging £16 a ton from Montevideo to Matto Grosso, the distance being 2500 miles.

In Australia the construction of railways has been attended with the following reduction of freight charges :—

Haulage of One Ton Ten Miles

Year							Pence
1864	.	.	.	.	.	.	75
1872	.	.	.	.	.	.	36
1878	.	.	.	.	.	.	24
1887	.	.	.	.	.	.	18

During the gold fever extravagant sums were paid for freight, the ordinary charge in 1851 from Melbourne to Bendigo being £150 per ton.

FRUIT

The degrees of sugar in various fruits are :—

Peach . . . . 1.6 | Apple 7.9
Raspberry . . . 4.0 | Mulberry . . . 9.2
Strawberry . . . 5.7 | Pear 9.4
Currant . . . 6.1 | Cherry 10.8
Gooseberry . . . 7.2 | Grape 14.9

The countries which import fruit are the following :—

	Tons			Value, £		
	1860	1880	1887	1860	1880	1887
United Kingdom . .	79,000	107,000	320,000	1,800,000	3,300,000	6,200,000
France . . .	...	32,000	195,000	...	3,900,000	3,000,000
United States . .	13,000	40,000	67,000	800,000	2,700,000	4,300,000

The countries which export fruit are the following :—

	Tons			Value, £		
	1862	1875	1887	1862	1875	1887
Italy	48,000	99,000	240,000	1,200,000	1,600,000	2,200,000
Spain	34,000	72,000	160,000	700,000	1,500,000	2,200,000
Portugal	...	24,000	17,000	...	160,000	140,000
Greece	42,000	87,000	107,000	540,000	1,470,000	1,900,000

The price of fruit in most countries has fallen notably in the last thirty years, which is due to the great increase of production, and to improved facilities for bringing fruit to ports for shipment.

Mr. Loring, ex-Commissioner of Agriculture, valued the fruit crop of the United States in 1880 at £42,000,000 sterling, and the annual consumption of fruit at 12s. English, per inhabitant of the Union, and 24s. in New York. The Royal Agricultural Journal of England states the acreage under fruit-trees in the United King-

dom, and the importation of apples from abroad, to be thus :—

Fruit Acreage		Apples Imported	
Year	Acres	Year	Tons
1839	90,000	1839	1,800
1872	172,000	1869	12,300
1889	214,000	1888	95,000

The annual consumption of fruit and vegetables in London and Paris is stated by the *Farming World* thus :—

	Fruit, Lbs. per Inhab.			Vegetables, Lbs. per Inhab.	
	London	Paris		London	Paris
Apples . .	65	145	Carrots . .	7	37
Cherries . .	2	20	Celery . .	1	6
Pears. . .	40	170	Onions . .	34	5
Plums . .	17	183	Peas. . .	3	7
Raspberries.	1	2	Potatoes .	173	49
Strawberries	4	13	Tomatoes .	57	17

Almonds.—The exportation from Italy was as follows:—

Year	Tons	Value, £	Value per Ton, £
1862 . . .	2,500	190,000	76
1870 . . .	3,100	240,000	78
1887 . . .	11,100	600,000	54

And from Spain as follows :—

Year	Tons	Value, £	Value per Ton, £
1872 . . .	3,800	180,000	47
1882 . . .	4,100	180,000	44
1887 . . .	4,400	220,000	50

The almond flourishes between 27 and 45 N. lat., and requires a medium annual temperature of 58° F. In France the yield averages 12 lbs., in California 20 lbs. per tree. The fruit usually sells at £100 per ton. The crop in California averages a value of £100 sterling per acre.

Apple.—The apple crop in Great Britain averages 85,000 tons, valued at £10 per ton; about 12 million gallons of cider are made yearly. The production of cider in France averages 230 million gallons. Apples in France are worth £5 per ton, ordinary crop 1,600,000 tons. The orchards of Great Britain cover 180,000 acres : a ton of ordinary good apples will produce from 100 to 200 gallons of cider. Great Britain imports 900,000 barrels of apples yearly from the United States and Canada. The imports show thus :—

	Tons
1839	1,800
1869	12,300
1888	95,000

The annual consumption in the United Kingdom averages 11 lbs. per inhabitant.

Banana.—The most prolific of all fruits of the earth, being 44 times more productive than potatoes, and 131 times more than wheat.

Chestnuts form an important item of food in France and Italy. Returns for 1886–88 were :—

	France	*Italy*
Acres . .	1,220,000	1,010,000
Bushels . .	19,000,000	14,000,000

The yield of a good tree averages two bushels. The French crop is valued at £1,600,000, the Italian at £1,200,000 sterling ; the average yield in France is 15, in Italy 14 bushels per acre. Italy exports 500,000 bushels.

Currants.—The exportation from Greece shows :—

Period	Annual Average		Value per Ton, £
	Tons	Value, £	
1867–70	52,000	600,000	12
1871–75	67,000	1,200,000	18
1880	54,000	840,000	16
1889	56,000	900,000	16

Greece produces annually 100,000 tons, the home consumption averaging 40,000 tons.

Imports into the United Kingdom were as follows :—

Period	Annual Average		Value per Ton, £
	Tons	Value, £	
1866–70 . . .	45,000	910,000	20
1871–80 . . .	54,000	1,450,000	27
1881–88 . . .	53,000	1,420,000	27

Date-Palm

	Number of Trees	Yield of Sugar, Tons
India . .	13,000,000	26,000
Egypt . .	4,500,000	...

Figs.—The exportation by Greece and Portugal is as follows :—

Greece			Portugal		
Year	Tons	Value, £	Year	Tons	Value, £
1867	7,000	65,000	1877	5,000	52,000
1888	8,000	90,000	1887	13,000	110,000

Oranges and Lemons flourish in Italy, Spain, and Portugal. The orange was introduced into Europe by the Moors in the eleventh century, and first brought to England by Sir Walter Raleigh in the sixteenth. It was first planted in Australia, near Sydney, in 1788, and has thrived there. The cost of clearing and planting an orange-farm in New South Wales is £30 per acre, and the product begins in the fourth year, rising as follows :—

4th year . . £10 per acre	6th year . . £25 per acre
5th ,, . . 15 ,, ,,	7th ,, . . 40 ,, ,,

Sometimes the product reaches £100 per acre, a single tree often giving from 1500 to 2000 oranges, worth 4s. per hundred. In Italy the ordinary yield is 250 lemons and 300 oranges per tree, but a single tree will often give as many as 3000. The average in Seville is 600, in Paraguay 700 oranges per tree.

The island of St. Michael, Azores, has 210 acres mostly under oranges, of which it exports 250 millions yearly.

The number of trees and fruit in Italy are :—

	Trees	*Millions Fruit Yearly*
Orange . . .	5,400,000	1,600
Lemon . . .	4,800,000	1,200

Italy exports about 2500 millions oranges and lemons yearly, Spain 1400 millions, Portugal 80 millions, worth £40,000 ; Paraguay 60 millions, worth £20,000. The Argentine provinces also grow largely, and export 7 millions yearly to Bolivia, value £2000. Dundee consumes yearly 6000 chests of bitter oranges, and exports 1500 tons of marmalade. In Sicily it is found that 1000 lemons give 17 gallons of juice.

The number approximately of oranges imported into the United Kingdom has been :—

Year	Millions	Per Inhabitant	Price, Shillings per 1000
1854	244	9	30
1861	390	13	36
1871	712	23	26
1881	1,152	33	23
1889	1,760	46	20

The consumption of oranges per inhabitant represents 1s. yearly or about 2s. by retail.

The weight, value, and approximate number of oranges and lemons exported in 1888 by Italy and Spain were :—

	Tons	Millions of Fruit	Value, £	£ per Ton
Italy .	165,000	2,470	1,200,000	7.3
Spain .	95,000	1,430	800,000	8.4

A box contains 226, a chest 340 oranges.

Raisins.—The exportation from Spain was as follows :—

Annual Average

Period	Tons	Value, £	Value per Ton, £
1872–80. . .	37,000	100,000	30
1881–87. . .	36,500	900,000	25

Imports into the United Kingdom have been yearly thus :—

Period	Tons	Value, £	Value per Ton, £
1866–70. . .	20,000	640,000	32
1871–80. . .	25,000	880,000	35

FUEL

The annual consumption is approximately as follows :—

	Millions		Per Inhabitant	
	Coal, Tons	Firewood, Cubic Feet	Coal, Cwts.	Firewood, Cubic Feet
United Kingdom . .	140	60	74	2
France	27	800	14	21
Germany	55	700	24	15
Russia	9	4,000	2	45
Austria	16	1,200	9	32
Italy	3	240	2	8
Spain and Portugal .	2	110	2	6
Belgium	12	...	44	...
Holland	3	20	14	5
Sweden and Norway	2	320	5	45
Europe	269	7,450	17	20
United States . . .	155	3,000	28	50
Canada	2	140	9	28
Total . . .	426	10,590	18	24

Pounds of water evaporated by 1 lb. of fuel as follows :—

Straw .	.	.	1.9	Coke or charcoal .	6.4
Wood .	.	.	3.1	Coal . . .	7.9
Peat .	.	.	3.8	Petroleum . .	14.6

To make a ton of charcoal will be required of wood as follows :—

	Tons		Tons		Tons
Oak . . .	4.4	Beech . . .	5.1	Birch . . .	5.9
Chestnut . .	4.5	Elm . . .	5.2	Pine . . .	6.0

For heating power 12 lbs. charcoal are equal to 10 lbs. coal or 13 lbs. coke. It is much used in America, France, and Italy. The ironworks of the United States consume 600,000 tons charcoal yearly, the yield of 50,000 acres, the average being 12 tons per acre. At Noirmoutiers, in France, 200 furnaces are constantly at work making charcoal from seaweed, 20 tons of fresh weed or 4 tons of dry producing 1 ton of charcoal, value 10s. In Ireland

it is often made from peat. The heating power of peat varies as follows :—

Bog of Allen, Ireland.	100	Passy, France .	.	52
Hartz Mountains .	61	Ham, ,, .	.	49
Königsbrunn . .	57	Troyes, ,, .	.	32

The production in France is declining, not exceeding 300,000 tons per annum. Some years ago an estimate was made of the area and contents of peat bogs in the United Kingdom, and the value of the peat at 6d. per ton, viz. :—

	Acres	Millions of Tons	Value at 6d. per Ton, £
Ireland	2,831,000	33,972	850,000,000
Great Britain . .	3,505,000	42,060	1,050,000,000
United Kingdom	6,336,000	76,032	1,900,000,000

The average depth of peat is 12 feet, equal to a yield per acre of 12,000 tons of dried turf.

FURNITURE

Insurance agents say that furniture usually represents a value equal to half that of the house in which it is, including carriages, clothing, jewellery, and works of art. On this basis the value at various dates of furniture in the United Kingdom would be thus :—

Year	Millions £	Per House, £	Per Inhab., £
1802	190	70	12
1830	270	75	13
1850	440	95	16
1860	580	118	20
1870	740	131	24
1880	1,030	158	29
1888	1,320	186	34

In 1880 this value was approximately distributed among five classes of householders, as follows :—

Class	Houses, Thousands	Furniture, Millions £	Average, £	
			Per House	Per Inhab.
1st . .	23	136	5,900	1,080
2nd . .	261	274	1,050	190
3rd . .	563	172	307	55
4th . .	1,423	186	130	23
5th . .	4,175	262	...	6,211
Total	6,445	1,030	158	29

The above does not include churches and other public buildings.

In 1883 Professor Leone Levi found 79,000 cabinet-makers in the United Kingdom, whose wages reached £4,600,000. The output of furniture represents a value of nearly 40 millions sterling per annum, almost wholly for home use. The export of furniture has been :—

			£				£
1855	.	.	180,000	1875	.	.	390,000
1865	.	.	290,000	1888	.	.	750,000

The annual expenditure on furniture in the United Kingdom is about £1 sterling per inhabitant.

G.

GAMES

Billiards.—At billiards the greatest "break" on record is 2413, scored by W. J. Peall, November 5, 1886, at the Aquarium, London. The same player made the greatest number of spot hazards in succession, 633, in the year 1888.

Bull-Fighting.—In 1866 the balance-sheet of ninety-nine bull-rings then in Spain contained the following items:—

	No.	Cost, £	Average, £
Bulls killed . .	2,375	61,000	26
Horses killed . .	3,561	70,000	20
Bull-rings, rent .	99	130,000	1,310
Total .	...	261,000	...

The number of bull-rings in 1878 was still the same. The above does not include the pay of Matadores, Bandilleros, &c.

GAS

The following table shows the cost of street lighting in 1880 in various cities:—

	Cost per Annum, £	Price per 1000 Feet, Pence	Cost per Inhab., Pence	Candle-Power
London . . .	460,000	45	30	12
Paris	620,000	68	70	13
Rome . . .	24,000	...	20	...
Vienna . . .	43,000	45	10	15
Berlin . . .	53,000	51	13	16
New York . .	...	120	...	16
San Francisco .	59,000	...	67	...
Glasgow . .	...	48	...	28
Bucharest . .	20,000	...	24	...
Palermo . .	20,000	...	23	...
Liverpool . .	...	42	...	22
Turin . . .	18,000	...	20	...
Florence . .	14,000	...	22	...
Manchester .	...	36	...	22
Buda-Pesth .	16,000	...	12	...

The consumption in London and Paris was as follows:—

	London			Paris		
	1860	1880	1888	1860	1880	1889
Millions cubic ft.	8,200	18,100	24,700	2,660	8,470	11,010
Per inhab. ,, ,,	2,930	4,750	5,400	1,610	3,940	4,800

Paris has 49,000 street lamps, the other French towns 190,000. London has 71,100.

The following table shows various analyses of gas:—

	London	Paris	Bonn	Gas from Wood	From Peat	From Rock-Oil	From Petroleum
Hydrogen . . .	46.0	50.2	39.8	31.8	27.5	3.1	32.7
Gas de marais . . .	39.5	32.8	43.1	35.3	42.7	64.8	45.7
Oxide of carbon . .	7.5	12.9	4.7	25.6	20.3	6.7	...
Various	7.0	4.1	12.4	7.3	9.5	25.4	21.6
Total . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The consumption in the United Kingdom in 1880 was as follows:—

	London	Other Towns	Total
Millions cubic feet . . .	18,100	53,500	71,600
Per inhabitant, cubic feet	4,750	3,100	3,400

The average expenditure for gas is 21s. per inhabitant per annum in London, and 10s. in other towns. A ton of coal gives 9000 cubic feet of gas.

The London Gas Company showed in 1880 as follows:—Capital, £13,026,000; receipts, £3,993,000; expenses, £2,610,000; net earnings, £1,383,000.

In 1888 London consumed as follows:—

	Millions of Cubic Feet
Private lights	23,300
Public lights	1,400
Total . . .	24,700

The paid-up capital of London gas companies in 1888 was £14,100,000, including £3,000,000 loan capital.

The statistics of gas companies in the United Kingdom, including those belonging to municipal bodies, are as follows:—

	1885	1888
Capital, £ . .	55,100,000	59,100,000
Tons coal used .	8,400,000	9,300,000
Millions cubic feet gas	85,600	94,700
Number of consumers	2,100,000	2,200,000

The returns for 1888 of joint-stock companies and municipal ones were:—

	Joint-Stock	Municipal	Total
Capital, £	37,750,000	21,350,000	59,100,000
Tons coal used . .	6,100,000	3,200,000	9,300,000
Millions cubic feet gas	62,300,000	32,400,000	94,700,000
Number of consumers	1,100,000	1,100,000	2,200,000
Receipts, £	10,500,000	4,800,000	15,300,000
Expenditure, £ . .	7,100,000	3,400,000	10,500,000
Net profit, £ . . .	3,400,000	1,400,000	4,800,000

The consumption in London on one day of thick fog, 14th January 1889, reached 105 million cubic feet, representing a cost of £18,000. The largest gasometer in England is that of Liverpool, which can hold 3,100,000 cubic feet.

The balance-sheet of the Paris Gas Company for 1889 showed thus:—

Consumption, cubic feet . . .	11,010,000
Paid for coal, £	840,000
Total expenditure, £ . . .	2,600,000
Receipts, £	4,200,000
Net profit, £	1,600,000
Dividend	31 per cent.

GEOLOGY

Professor Philips in 1836 published the following table of strata, and number of organic forms to each stratum :—

	Feet Thick	Organic Forms per 100 Feet
Tertiary	2,000	141
Cretaceous . . .	1,100	71
Oolitic	2,500	46
Saliferous . . .	2,000	8
Carboniferous . .	10,000	5
Primary . . .	20,000	2

FOSSIL REMAINS

Mammalia	144	Terrestrial plants . .	500
Reptiles	71	,, animals .	330
Fishes	183	Marine plants . . .	40
Insects	74	,, animals .	6,065
Conchifera	2,026	Fresh-water plants .	40
Gasteropoda . . .	880	,, animals .	260
Kephalopoda . . .	788		
Crustacea, &c. . . .	1,970	Total . .	7,235
Total . .	6,136		

The distribution of France is as follows :—

	Acres	Ratio
Tertiary . . .	38,900,000	30
Jurassic . . .	25,900,000	20
Primitive . . .	24,000,000	18
Cretaceous . . .	15,400,000	11
Transitionary . .	13,000,000	10
Triassic . . .	6,500,000	5
Porphyry and coal .	1,300,000	1
Volcanic, &c. . .	4,600,000	5
Total . .	129,600,000	100

The experiments of Schubler and Schleiden give the power of absorbing water in an area of 50 square inches as follows, per 1000 grains of soil :—

	Grains Absorbed in			
	12 Hours	24 Hours	48 Hours	72 Hours
Gypsum . . .	1	1	1	1
Limestone sand .	2	3	3	3
Loam clay . .	21	26	28	28
Muddy	25	30	34	35
Calcareous clay .	26	31	35	35
Field	16	22	23	23
Slaty marl . . .	24	29	32	33
Garden mould .	35	45	50	52
Humus	80	97	110	120

GEOLOGICAL SURVEYS

Various geological surveys of countries have been made, viz. :—

Country	One in	Inches to 100 Miles	Country	One in	Inches to 100 Miles
U. Kingdom	63,000	100	Spain . .	50,000	127
France . .	80,000	79	Portugal .	100,000	63
Prussia . .	25,000	253	Sweden .	200,000	32
Austrian Empire	75,000	84	Holland .	200,000	32
			Belgium .	20,000	320
Russia . .	420,000	15	Finland .	200,000	32
Italy . . .	100,000	63			

GIANTS

Name	Place	Height, Feet	Period
Goliath	Palestine .	11.0	B.C. 1063
Galbara . . .	Rome . .	10.0	Claudius Cæsar
Funnam . . .	Scotland .	11.5	Eugene II.
De Vallemont .	Rouen . .	17.0	14th century
Count Bucart . .	Dauphiny .	22.6	16th ,,
Theutobochus .	,,	25.5	16th ,,
Unknown . . .	Palermo .	30.0	15th ,,
John Middleton .	England .	9.3	A.D. 1578
Frederic's Swede	Sweden .	8.4	...
Cujanus . . .	Finland . .	7.9	...
Gilly	Tyrol . .	8.1	...
Patrick Cotter .	Cork . .	8.7	1806
Chang Gow . .	Pekin . .	7.8	1880

GLASS

Consumption in United Kingdom as follows :—

	Tons
1801	16,300
1833	18,200

In 1834 M'Culloch estimated that the glass factories of the United Kingdom employed 50,000 men, and produced thus :—

England	. . . . .	1,850,000
Scotland		100,000
Ireland		50,000
Total .		2,000,000

In 1880 the consumption of plate glass in Great Britain amounted to six million square feet, of which one-sixth was imported, the rest native manufacture. The imports and exports of all kinds of glass showed thus :—

Year	Imports, £	Exports, £
1874 . . .	1,600,000	1,200,000
1880 . . .	1,800,000	920,000
1888 . . .	1,900,000	1,100,000

The total glass manufactures of the United Kingdom may be estimated at about three millions sterling per annum.

GLOVES

Great Britain imports annually (1887–89) no less than 19 million pair, valued at £1,900,000. France makes 30 million, and exports about two-thirds, the industry representing a yearly value of £3,000,000. Austria exported 100 tons of gloves in 1885, being twenty times the quantity exported in 1860; there are numerous factories at Prague, which city turns out five million pair yearly, valued at £400,000. Italy exports approximately 20 million pair, the value being stated at £1,800,000; and, according to Mr. Simmonds, the factories in the United States produce gloves to the value of nearly £4,000,000 sterling, besides which the Americans in 1887 consumed £830,000 worth of European gloves.

GOATS

The numbers in the various countries mentioned under *Cattle* will be found at p. 110. There are also 720,000 in Turkey, 2,790,000 in South Africa, and 19,000,000 in India.

An ordinary goat gives a quart of milk daily, and lives ten years. The Turkish breed known as Angora produces a fine hair worth 2s. per lb., say 2 lbs. per goat per annum. One-third of the goats in South Africa are of Angora or mixed breed, the first having been introduced from Smyrna in 1860.

U

GOLD AND SILVER

The quantity of precious metals at remote dates of antiquity has been often discussed. The following facts are worthy of note :—

Date		£
B.C. 520.	Cyrus's booty from Asia . . .	8,000,000
B.C. 323.	Alexander's from Persia was 351,000 talents, equal to . . . . . }	81,000,000
B.C. 44.	Julius Cæsar seized in the Roman treasury 520 tons gold and 700 tons silver, together worth . . }	75,000,000

According to Jacob, the Roman Empire in time of Augustus, A.D. 14, possessed 358 millions sterling of gold and silver. Jacob, Tooke, Newmarch, &c., estimated the stock of precious metals in the world at various dates, the result of their views being contained in the following table, with later information added :—

A.D.	Tons		Millions £		
	Gold	Silver	Gold	Silver	Total
1600 . . .	830	23,000	116	276	392
1700 . . .	1,310	45,000	183	450	633
1800 . . .	2,730	88,000	382	760	1,142
1850 . . .	3,620	113,000	507	976	1,483
1880 . . .	7,800	145,000	1,092	1,090	2,182
1888 . . .	8,600	160,000	1,204	1,010	2,214
1890 . . .	8,820	165,000	1,235	1,213	2,448

But for the sudden rise of 15 per cent. in the price of silver in 1890, the stock of that metal, at prices of 1889, would stand for no more than 1040 millions sterling.

Several eminent statists have published estimates of the production of precious metals since Columbus discovered the New World.

Soetbeer's table of the production of gold and silver is as follows :—

Period	Tons		Value, Million £			Annual Average of Total, £
	Gold	Silver	Gold	Silver	Total	
1493–1520	162	1,316	23	14	37	1,300,000
1521–1600	593	21,519	83	258	341	4,300,000
1601–1700	911	37,234	128	372	500	5,000,000
1701–40	638	15,736	90	140	230	5,700,000
1741–80	906	23,718	127	213	340	8,500,000
1781–1800	356	17,581	50	151	201	10,500,000
1801–20	292	14,350	41	125	166	8,300,000
1821–30	142	4,606	20	37	57	5,700,000
1831–40	203	5,965	28	52	80	8,000,000
1841–50	548	7,804	77	67	144	14,400,000
1851–60	2,018	8,956	282	78	360	36,000,000
1861–70	1,885	12,201	264	105	369	36,900,000
1871–80	1,715	22,347	241	178	419	41,900,000
1881–88	1,067	21,960	148	154	302	37,700,000
396 years	11,436	215,293	1,602	1,944	3,546	9,000,000

The values were as follows :—

Period	Tons Gold					
	United States	Spanish America	Russia	Australia	Various	Total
1493–1850	30	3,045	310	...	1,366	4,751
1851–60	830	50	256	772	110	2,018
1861–70	713	60	271	741	100	1,885
1871–80	620	105	380	525	85	1,715
1881–88	373	60	280	260	94	1,667
396 years	2,566	3,320	1,497	2,298	1,755	11,436

	Value, Millions £					
1493–1850	4	429	43	...	191	667
1851–60	116	7	36	108	15	282
1861–70	100	8	38	104	14	264
1871–80	87	15	53	74	12	241
1881–88	52	8	39	36	13	148
396 years	359	467	209	322	245	1,602

	Tons Silver					
	United States	Mexico	South America	Germany	Various	Total
1493–1850	...	63,480	61,500	5,800	19,049	149,829
1851–60	7	4,570	2,045	550	1,784	8,956
1861–70	2,375	4,970	2,105	790	1,961	12,201
1871–80	7,750	6,360	3,620	1,530	3,087	22,347
1881–88	8,860	5,800	2,800	2,100	2,400	21,960
396 years	18,992	85,180	72,070	10,770	28,281	215,293

	Value, Millions £					
1493–1850	...	606	586	55	182	1,429
1851–60	...	40	18	5	15	78
1861–70	20	43	18	7	17	105
1871–80	62	51	29	12	24	178
1881–88	62	41	20	15	16	154
396 years	144	781	671	94	254	1,944

The value of gold is taken at £140,000 per ton, that of silver at the current market price.

Jacob estimated the production of precious metals from 1492 (date of the discovery of America) to 1829 as follows:—

Period	America	Old World	Total	Annual Average
	£	£	£	£
1492–1545	17,200,000	5,400,000	22,600,000	420,000
1546–1600	111,400,000	7,600,000	119,000,000	2,200,000
1601–1700	307,000,000	30,000,000	337,000,000	3,370,000
1701–1809	786,000,000	94,000,000	880,000,000	8,150,000
1810–29	84,000,000	19,000,000	103,000,000	5,150,000
337 years	1,305,600,000	156,000,000	1,461,600,000	4,400,000

He estimated the total stock of gold and silver in Europe in 1492 at no more than £33,400,000, and accounted for the stock and production down to 1829 as follows :—

Period	Production, £	Consumption			Balance
		India and China	Manufactures	Mint	
1492–1600	141,600,000	14,000,000	28,000,000	5,000,000	94,600,000
1601–1700	337,000,000	33,000,000	60,000,000	77,000,000	167,000,000
1701–1809	880,000,000	352,000,000	352,000,000	93,000,000	83,000,000
1810–29	103,000,000	40,000,000	112,000,000	18,000,000	...
Total . .	1,461,600,000	439,000,000	552,000,000	193,000,000	...

The consumption in 337 years amounted to 1184 millions sterling, being 277 millions less than the production.

Messedaglia's table of precious metals for 383 years is as follows from 1493 to 1875 :—

	Tons Produced		Value, Mill. £ Stg.		
	Gold	Silver	Gold	Silver	Total
Russia	1,033	2,400	142	22	164
Germany	...	7,900	...	70	70
Austria	460	7,800	64	70	134
Europe	1,493	18,100	206	162	368
Africa	732	...	101	...	101
Australia	1,812	...	250	...	250
United States . . .	2,026	5,300	280	47	327
Mexico	265	76,200	36	677	713
Peru	164	31,200	22	280	302
Chile	27	2,600	4	23	27
Brazil	1,037	...	143	...	143
Potosia	291	37,700	40	336	376
Columbia	1,214	...	168	...	168
Spanish America . .	2,998	147,700	413	1,316	1,729
Various	392	9,400	52	79	131
Total . .	9,453	180,500	1,302	1,604	2,906

Tooke's table comparing the production of precious metals in 1848 with 1800 was as follows :—

	Gold		Silver	
	1800	1848	1800	1848
	£	£	£	£
Russia . .	100,000	4,100,000	200,000	200,000
Rest of Europe	150,000	360,000	1,320,000	560,000
Africa . .	280,000	550,000	...	...
India, &c. .	830,000	3,000,000	1,000,000	100,000
Old World .	1,360,000	8,010,000	2,520,000	860,000
Mexico . .	220,000	500,000	4,080,000	4,800,000
N. Grenada	650,000	680,000	40,000	...
Peru . . .	100,000	100,000	1,330,000	1,250,000
Bolivia . .	70,000	60,000	460,000	980,000
Chili . . .	380,000	140,000	290,000	180,000
Brazil . .	510,000	340,000	...	...
U. States .	...	240,000	...	...
America . .	1,930,000	2,060,000	6,200,000	7,210,000
The world .	3,290,000	10,070,000	8,720,000	8,070,000

He estimated the production in Russia and Siberia as follows :—

Period	Gold	Silver	Total	Annual Product
	£	£	£	£
1704–1809 .	17,100,000	9,760,000	26,860,000	250,000
1810–24 . .	2,200,000	1,680,000	3,880,000	260,000
1825–47 . .	31,000,000	3,940,000	34,940,000	1,520,000
1848–50 . .	10,100,000	480,000	10,580,000	3,530,000
1851–54 . .	12,300,000	610,000	12,910,000	3,230,000
150 years .	72,700,000	16,470,000	89,170,000	590,000

He estimated the production in the rest of Asia as follows :—

Period	Gold	Silver	Total	Annual Average
	£	£	£	£
1492–1809 .	127,000,000	16,900,000	143,900,000	460,000
1810–24 . .	12,040,000	1,600,000	13,640,000	920,000
1825–47 . .	37,000,000	8,200,000	45,200,000	1,970,000
1848–50 . .	8,000,000	2,900,000	10,900,000	3,670,000
1851–54 . .	14,400,000	3,920,000	18,320,000	4,580,000
362 years .	198,440,000	33,520,000	231,960,000	640,000

It is worthy of remark, as shown in Soetbeer's table on the preceding page, that from 1851 to 1888 the annual production of precious metals averaged from 37 to 41 millions sterling. At present it is close on 40 millions, and there is no indication of any future decline.

The production of silver in the last ten years, according to the United States Mint Report, was as follows :—

Year	Ounces Fine Silver			Price, Average Pence per Oz.
	United States	Other Countries	The World	
1880	30,300,000	44,500,000	74,800,000	52
1881	33,300,000	45,600,000	78,900,000	52
1882	36,200,000	50,300,000	86,500,000	54
1883	35,700,000	53,400,000	89,100,000	51
1884	37,800,000	43,800,000	81,600,000	50½
1885	39,900,000	51,700,000	91,600,000	48½
1886	39,400,000	53,800,000	93,200,000	45¼
1887	41,300,000	54,900,000	96,200,000	45
1888	45,800,000	64,200,000	110,000,000	43
1889	50,000,000	76,000,000	126,000,000	42½
10 years	389,700,000	538,200,000	927,900,000	48⅓

The production of gold in eight years ending December 1888 was as follows :—

Year	Ounces Fine Gold				Value of Product, £
	United States	Australia	Russia	Total	
1881	1,880,000	1,250,000	2,030,000	5,160,000	21,000,000
1882	1,600,000	1,150,000	1,820,000	4,570,000	17,600,000
1883	1,450,000	1,050,000	1,900,000	4,400,000	16,900,000
1884	1,490,000	1,000,000	1,900,000	4,390,000	16,900,000
1885	1,540,000	1,100,000	1,850,000	4,490,000	17,300,000
1886	1,880,000	1,040,000	1,840,000	4,760,000	18,300,000
1887	1,600,000	1,150,000	1,860,000	4,610,000	17,800,000
1888	1,600,000	1,500,000	1,850,000	4,950,000	19,200,000
8 years	13,040,000	9,240,000	15,050,000	37,330,000	145,000,000

The production of precious metals in the United States is officially estimated as follows :—

Period	Gold, Oz.	Silver, Oz.	Value, £
1845–50 . . .	5,200,000	300,000	21,000,000
1851–60 . . .	28,500,000	500,000	114,000,000
1861–70 . . .	24,700,000	80,000,000	120,000,000
1871–80 . . .	20,500,000	310,000,000	163,000,000
1881–88 . . .	13,100,000	310,000,000	129,000,000
44 years . . .	92,000,000	700,800,000	547,000,000

In the above table, however, silver is valued at 60d. per oz.—much above the market price. The gold produced from 1851 to 1888 amounts to 2486 tons, the silver to 20,300 tons, which latter is about 5 per cent. over Soetbeer's estimate. The relative quantities of the two metals, as shown above, and the price of silver per oz., as well as its value in exchange for gold, are given in the following table, which shows conclusively that it is a fallacy to suppose that the world is being flooded with silver. If the production were, as compared with gold,

to be of the same magnitude as in the eighteenth century, we should require double the present quantity to be produced yearly. It appears, meantime, that silver is relatively much less used in manufactures than gold, the annual consumption under this head being 45 per cent. of the gold produced, and 27 per cent. of silver :—

Period	Tons of Silver to 1 of Gold	Price of Silver, Pence per Oz.	Ounces of Silver for 1 of Gold
1600–20 . . .	27.7	77.0	12.1
1700–20 . . .	34.3	62.0	15.1
1800–20 . . .	32.2	61.0	15.3
1821–40 . . .	33.1	60.0	15.6
1841–60 . . .	31.0	60.0	15.6
1861–70 . . .	22.6	60.0	15.6
1871–80 . . .	18.6	56.0	16.7
1881–82 . . .	18.4	53.0	17.6
1883–84 . . .	18.5	50.7	18.4
1885–86 . . .	18.6	47.0	19.9
1887–88 . . .	18.6	44.0	21.2
1890	18.7	51.0	18.3

The uses to which the precious metals were put in fifty years down to 1888 are stated by Soetbeer to be :—

Period	Gold, Tons				Silver, Tons			
	Coinage	Manufactures	The East	Total	Coinage	Manufactures	The East	Total
1831–40 . . .	50	180	10	240	2,700	2,000	2,200	6,900
1841–50 . . .	350	200	28	578	4,800	2,200	2,400	9,400
1851–60 . . .	1,633	280	100	2,013	...	2,700	11,300	14,000
1861–70 . . .	1,008	570	300	1,878	...	3,100	12,300	15,400
1871–80 . . .	849	840	120	1,809	1,200	4,500	10,800	16,500
50 years . . .	3,890	2,070	558	6,518	8,700	14,500	39,000	62,200

The stock of silver is relatively much lower now, as compared with gold, than in the early years of the present century, when there were 33 tons of silver in the world for 1 ton of gold. If the price of silver were ruled by ratio it would have been as follows :—

Period	Ratio of Silver to Stock of Gold		Pence per Oz.
1821–40 .	33.1	...	60
1881–88 . . .	18.6	...	107

If the foregoing estimates be correct, there has been a dearth of both gold and silver, the production falling short of the consumption, viz. :—

	1831–80	
	Gold, Tons	Silver, Tons
Production . . .	6,358	57,273
Consumption . . .	6,518	62,200
Deficit	160	4,927

The deficit was probably met by melting down old plate. The current of bullion (coined or uncoined) between nations since 1861 was as follows :—

Period	Gold, Millions £ Sterling Imported				
	Great Britain	France	United States	Various	Total
1861–70 . .	171	189	31	121	512
1871–80 . .	180	151	42	131	504
1881–88 . .	96	63	64	144	367
Total .	447	403	137	396	1,383

Period	Gold Exported, Millions £					
	Great Britain	France	United States	Australia	Various	Total
1861–70 . . .	112	119	113	108	60	512
1871–80 . . .	172	90	74	76	92	504
1881–88 . . .	96	67	35	34	135	367
Total . .	380	276	222	218	287	1,383

Period	Silver Imported, Millions £					
	Great Britain	France	United States	The East	Various	Total
1861–70 . . .	93	92	12	233	44	474
1871–80 . . .	132	111	18	126	40	427
1881–88 . . .	66	62	23	116	36	303
Total . .	291	265	53	475	120	1,204

Period	Silver Exported, Millions £					
	Great Britain	France	United States	Spanish America	Various	Total
1861–70 . . .	91	78	22	74	209	474
1871–80 . . .	119	48	73	68	119	427
1881–88 . . .	68	49	41	37	108	303
Total . .	278	175	136	179	436	1,204

Period	Gold and Silver, Millions £ Imported					
	Great Britain	France	United States	The East	Various	Total
1861–70 . . .	264	281	43	233	165	986
1871–80 . . .	312	262	60	126	171	931
1881–88 . . .	162	125	87	128	168	670
Total . .	738	668	190	487	504	2,587

Period	Gold and Silver Exported, Millions £						
	Great Britain	France	United States	Australia	Spanish America	Various	Total
1861–70	203	197	135	108	81	262	986
1871–80	291	138	147	76	75	204	931
1881–88	164	116	76	34	41	239	670
Total	658	451	358	218	197	705	2,587

The current of bullion in the last eight years is more clearly shown as follows :—

1881–88	Imports, Millions £			Exports, Millions £		
	Gold	Silver	Total	Gold	Silver	Total
U. Kingdom .	96	66	162	96	68	164
France . . .	63	62	125	67	49	116
United States .	64	23	87	35	41	76
Spanish America	20	...	20	4	37	41
The East . . .	12	116	128	2	19	21
Australia . . .	2	...	2	34	...	34
Various . . .	110	36	146	129	89	218
Total .	367	303	670	367	303	670

Since 1881 Great Britain appears to have neither increased nor diminished her stock of gold, but to have exported a small quantity of silver. France has lost gold and gained silver : the United States has done exactly the reverse. India has absorbed both gold and silver.

The total current to and from the United States for sixty-eight years is stated thus :—

Period	Millions £ Sterling	
	Imports	Exports
1821–40	36	3
1841–60	34	93
1861–88	190	358
68 years	260	454

According to Mr. O'Conor, India received in thirty years (1860–89) and retained no less than :—

		£
Gold .	. . . . .	113,200,000
Silver .	. . . . .	227,000,000
	Total . .	340,200,000

To which he adds 102 millions for the preceding twenty-five years, making altogether 442 millions sterling in fifty-five years. He considers that the gold has been practically withdrawn from circulation, to be hoarded or converted into ornaments. Another writer says that in 280 years ending 1830 India absorbed 55,000 tons of silver, worth 490 millions sterling. Official tables give the net imports as follows :—

Period	Millions £ Sterling		
	Gold	Silver	Total
1850–59 . . .	18	52	70
1860–69 . . .	59	101	160
1870–79 . . .	18	50	68
1880–86 . . .	28	50	78
37 years . . .	123	253	376

Mr. N. Spallart summed up the production and consumption of precious metals in fifty years down to 1880 as follows :—

	Value, Millions £ Sterling		
	Gold	Silver	Total
Coinage . . .	543	38	581
The East . . .	78	351	429
Manufactures .	294	131	425
Total . .	915	520	1,435
Production . .	915	520	1,435

In the above, "coinage" does not include what was minted in the East.

The weight of precious metals used in forty years in the various mints (including re-coinage) from 1850 to December 1889 was :—

	Tons		Aggregate Value, Millions £
	Gold	Silver	
Great Britain . . .	1,301	2,620	207
France	2,159	5,135	349
Germany	894	6,420	183
Russia	1,102	2,580	178
Austria	137	5,360	67
Italy	123	2,530	40
Spain and Portugal .	220	1,480	43
Scandinavia	35	230	7
Holland	48	3,290	37
Belgium	170	2,060	42
Europe	6,189	31,705	1,153
United States . . .	2,096	11,460	397
Australia	644	...	90
India	15	29,270	265
Japan	110	1,100	25
Spanish America . .	140	7,700	90
Total . .	9,194	81,235	2,020

The total is made up of 1227 millions sterling of gold, and 793 millions of silver money. The stocks of coined and uncoined bullion appear to have been at various dates approximately as follows :—

A.D.	Gold, Millions £			Silver, Millions £		
	Coined	Uncoined	Total	Coined	Uncoined	Total
1600	29	87	116	102	174	276
1700	75	108	183	225	225	450
1800	126	256	382	360	400	760
1848	157	343	500	388	580	968
1880	735	357	1,092	556	534	1,090
1890	790	445	1,235	642	571	1,213

The above table will be clearer if given in tons, viz.:—

A.D.	Gold, Tons			Coined, Ratio per Cent.	Silver, Tons			Coined, Ratio per Cent.
	Coined	Uncoined	Total		Coined	Uncoined	Total	
1600	208	622	830	25	8,500	14,500	23,000	37
1700	537	773	1,310	41	22,500	22,500	45,000	50
1800	908	1,822	2,730	33	42,000	46,000	88,000	48
1848	1,125	2,450	3,575	32	45,200	67,800	113,000	40
1880	5,250	2,550	7,800	67	73,700	71,300	145,000	51
1890	5,640	3,180	8,820	64	88,100	76,900	165,000	53

It appears that coinage now absorbs nearly two-thirds of the total stock of gold, and more than half the silver, whereas forty years ago it took only 32 per cent. of gold, and 40 per cent. of silver.

The actual bulk of gold and silver coin in various countries, according to Spallart, in 1885 was as follows :—

	Tons		Aggregate Value, Millions £ Sterling
	Gold Coin	Silver Coin	
Great Britain . . .	915	2,420	144
France	1,335	16,500	328
Germany.	915	4,950	167
Russia	293	1,540	53
Austria	60	2,100	27
Italy	165	1,210	33
Spain	143	2,640	43
Portugal	67	220	11
Scandinavia	52	220	9
Switzerland	22	330	6
Holland	37	1,430	18
Belgium	82	1,210	22
Roumania	8	330	4
Turkey, &c.	113	990	24
Europe	4,207	36,090	889
United States . . .	1,058	9,570	228
Australia	165	220	24
Japan	143	990	28
China	...	16,500	150
Java	...	1,980	18
India	...	17,600	160
Singapore	...	2,640	24
Cape Colony . . .	52	...	7
Cuba	30	...	4
Canada	23	110	4
Algeria	15	330	5
Spanish America, &c.	232	2,070	50
The world .	5,925	88,100	1,591

The total value is made up of 790 millions sterling in gold coin and silver money nominally representing 801 millions, but worth only 642 millions.

In 1886 Spallart estimated the annual consumption for manufactures as follows :—

	Gold, Oz.	Silver, Oz.	Per 1000 Population	
			Gold, Oz.	Silver, Oz.
U. States .	683,000	4,020,000	12	70
G. Britain .	600,000	2,520,000	16	66
France . .	595,000	2,600,000	15	65
Germany .	420,000	2,870,000	9	60
Switzerland .	370,000	840,000	125	285
Austria . .	84,000	1,120,000	2	28
Italy . .	155,000	665,000	5	22
Russia . .	85,000	1,100,000	1	12
Holland & Belgium }	102,000	840,000	10	84
Various . .	56,000	1,445,000	...	...
Total .	3,150,000	18,020,000	...	...

The total makes up 90 tons gold and 515 tons silver yearly, which is in harmony with Soetbeer's estimate.

Besides the consumption for manufactures, gold coin loses 1 per cent. of its weight in fifty years, silver 1 per cent. in ten years. This means a yearly loss of 1¼ tons of gold, and 88 tons of silver.

The following table shows the amount of gold and silver plate stamped yearly in the United Kingdom and France :—

Date	United Kingdom, Oz. Yearly		Date	France, Oz. Yearly	
	Gold	Silver		Gold	Silver
1801-20	6,080	1,072,000	1830	101,000	1,740,000
1821-40	6,640	1,130,000	1840	164,000	2,290,000
1841-50	7,333	1,007,000	1850	169,000	1,840,000
1851-60	38,415	930,000	1860	288,000	2,290,000
1861-70	29,204	875,000	1870	380,000	2,380,000
1871-80	42,190	790,000	1878	409,000	2,460,000

GRAIN

The average yield per acre in various countries, mostly from 1880 to 1887, was in bushels as follows :—

	Wheat	Barley	Oats	Rye	Maize	General Average
U. Kingdom	28	33	37	...	...	30
France . .	18	20	26	16	19	19
Germany . .	22	20	18	16	...	18
Russia . .	8	9	15	10	15	10
Austria . .	16	18	22	16	20	18
Hungary . .	18	19	22	15	18	18
Italy . . .	12	15	19	...	20	14
Spain . . .	12	18	20	...	18	15
Portugal . .	12	15	15	...	...	14
Sweden . .	22	26	30	25	...	30
Norway . .	21	27	36	24	...	33
Denmark .	36	30	33	25	...	30
Finland . .	15	17	23	15	...	17
Holland . .	27	40	42	21	...	28
Belgium . .	25	33	36	20	...	28
Switzerland .	16	...	12	12	...	15
Roumania .	16	...	20	...	30	18
Greece . .	10	12	...	...	15	12
Turkey . .	10	12	...	...	15	12
Europe . .	14	17	22	14	20	...
United States	12	22	26	11	23	21
Canada . .	16	27	48	...	63	22
Australia . .	12	20	28	...	30	15
Cape Colony	10	15	10	...	10	11
India . . .	10	...	...	...	...	10
Egypt . . .	13	14	...	...	18	16
Algeria . .	13	15	...	...	...	14
Argentina .	10	...	...	...	20	15

Tables showing the acreage and production of the various kinds of grain will be found under *Agriculture*, p. 8. For consumption, see *Food*.

In the manufacture of grain it is found that 100 lbs. of wheat produce 82 lbs. of flour, and 100 lbs. of barley 78 of malt.

GRAVITY, SPECIFIC

A.—COMPARED WITH WATER

Liquids		*Timber*		*Metals*	
Water . .	100	Cork . . .	24	Zinc . . .	719
Sea-water .	103	Poplar . .	38	Cast iron .	721
Dead Sea .	124	Fir . . .	55	Tin . . .	729
Alcohol . .	84	Cedar . .	61	Bar iron .	779
Olive-oil . .	92	Pear . . .	66	Steel . . .	783
Turpentine .	99	Walnut . .	67	Copper . .	869
Wine . . .	100	Cherry . .	72	Brass . .	840
Urine. . .	101	Maple . .	75	Silver . .	1,051
Cider. . .	102	Apple . .	79	Lead. . .	1,135
Beer . . .	102	Ash . . .	84	Mercury .	1,357
Woman's milk	102	Beech . .	85	Gold . . .	1,926
Cow's ,,	103	Mahogany .	106	Platina . .	1,950
Goat's ,,	104	Oak . . .	117		
Porter . .	104	Ebony . .	133		

A gallon of wine or water weighs 10 lbs.

PRECIOUS STONES

Emerald . .	277	Diamond .	353	Garnet . .	406
Crystal . .	265	Topaz . .	401	Ruby . . .	428

SUNDRIES

Indigo . .	77	Peat . . .	133	Porcelain .	226
Ice . . .	92	Opium . .	134	Stone. . .	252
Gunpowder .	93	Honey . .	145	Marble . .	270
Butter . .	94	Ivory . .	183	Granite . .	278
Clay . . .	120	Brick . . .	200	Chalk . .	279
Coal . . .	130	Sulphur . .	203	Glass . . .	289

B.—WEIGHT IN CUBIC FEET

	Lbs. per Cubic Feet	Cubic Feet per Ton
Cork	15	150.0
Cedar	36	62.0
Beech	51	44.0
Butter	56	40.0
Ice	57	39.0
Water	62	36.0
Mahogany . . .	66	34.0
Oak	70	32.0
Clay	72	31.0
Coal	80	28.0
Peat	80	28.0
Brick	120	19.0
Stone	150	15.0
Granite . . .	166	13.5
Glass. . . .	172	13.0
Iron	470	4.8
Copper . . .	520	4.3
Silver . . .	630	3.6
Lead	680	3.3
Gold	1,155	2.0

GYPSIES

The number in Europe reaches 712,000, viz. :—

Great Britain . .	15,000	Austria. . .	197,000
Russia . . .	15,000	Roumania . .	193,000
Scandinavia . .	7,000	Turkey . .	200,000
Spain . . .	40,000	Germany, &c. .	42,000

H.

HATS

In 1835 M'Culloch estimated the value of hats made yearly in the United Kingdom at £2,400,000. In 1882 there were 12,000,000 men's hats made, worth £4,000,000. The hat industry flourished in New England in the eighteenth century ; more than 10,000 beaver hats were made in 1731, and some exported, but in 1732 Great Britain prohibited the exportation.

HAY AND STRAW

The production is approximately as follows :—

	Hay, Tons	Straw, Tons	Collective Value, £
Great Britain . .	8,500,000	6,500,000	25,600,000
Ireland	4,000,000	1,500,000	9,000,000
France	25,000,000	17,000,000	74,000,000
Germany . . .	16,000,000	15,000,000	47,000,000
Russia	60,000,000	45,000,000	82,000,000
Austria	14,000,000	17,000,000	33,800,000
Italy	12,000,000	5,000,000	22,000,000
Spain and Portugal .	6,500,000	9,500,000	18,000,000
Sweden and Norway . .	2,000,000	3,000,000	5,400,000
Denmark . . .	1,000,000	2,000,000	3,600,000
Holland . . .	3,000,000	1,000,000	6,900,000
Belgium . . .	5,000,000	1,600,000	11,600,000
Roumania and Servia . .	2,000,000	3,400,000	4,800,000
Europe	159,000,000	127,500,000	343,700,000
United States .	42,000,000	60,000,000	104,000,000
Total . .	201,000,000	187,500,000	447,700,000

The production in the United States has been as follows :—

Year	Hay, Tons	Straw, Tons	Collective Value, £
1840 . . .	10,000,000	12,000,000	26,000,000
1850 . . .	14,000,000	17,000,000	37,000,000
1860 . . .	19,000,000	25,000,000	45,000,000
1870 . . .	27,000,000	28,000,000	54,000,000
1880 . . .	35,000,000	54,000,000	89,000,000
1886 . . .	42,000,000	60,000,000	104,000,000

Official returns give only the quantity of hay ; that of straw is estimated above at 1 ton per 50 bushels of grain.

In the United Kingdom the hay crop averages 30 cwt. per acre, in Prussia 33, in France 30, in Italy 30 on irrigated and 16 on unirrigated land, in the United States 24. Italy has 3 millions irrigated and 10 millions unirrigated producing hay.

Three tons of grass usually give one ton of hay.

The weekly consumption of hay is—160 lbs. for a horse, 100 for a cow, 30 for a pig, 10 for a sheep, 8 for a goat.

HEMP

The world's crop is worth about 10 millions sterling, and the value of the manufactured goods is between 25 and 30 millions ; the statistics are in many countries mixed with those of flax. The Factory Report for the United Kingdom gives the hemp industry thus :—

Year	*Factories*	*Spindles*	*Hands*
1870 . . .	35	32,000	3,100
1878 . . .	58	25,000	4,800
1885 . . .	107	39,000	9,900

The production and consumption of hemp, as given by N. Spallart in 1885 were :—

	Tons Produced	Tons Consumed
Russia . . .	120,000	56,000
Austria . . .	90,000	90,000
Italy . . .	96,000	56,000
France . . .	50,000	68,000
Germany . . .	10,000	30,000
United States .	13,000	16,000
Other countries* .	16,000	79,000
Total . .	395,000	395,000

The imports of hemp into the United Kingdom are the only guide to extent of manufacture, the value of which is approximately as below :—

Year	Consumed, Tons	Price per Ton, £	Value of Manufactures, £
1810 . . .	48,000	58	8,600,000
1830 . . .	26,000	25	2,000,000
1840 . . .	30,000	27	2,400,000
1850 . . .	54,000	30	4,900,000
1860 . . .	35,000	18	1,900,000
1870 . . .	71,000	38	7,100,000
1880 . . .	73,000	29	5,400,000
1888 . . .	58,000	31	4,500,000

HOLIDAY

On Bank-holiday, 5th August 1889, in London the number of visitors to museums, &c., was as follows :—

British Museum . .	5,200	Zoological Gardens . 21,000
National Gallery . .	8,400	Crystal Palace . . 40,000
Kensington Museum	18,100	Kew Gardens . . . 64,000

besides 11,000 to Tussaud's waxworks and 7000 to Windsor Castle.

HOPS

	Acres	Crop, Tons	Value, £
England . . .	65,000	26,000	3,120,000
Germany . .	62,000	19,000	2,340,000
France . . .	9,000	4,500	550,000
United States . .	10,000	5,000	600,000

Germany consumes only three-fourths of her crop, but England has to import annually 7000 tons, her consumption averaging 33,000 tons. Returns for the United Kingdom show thus :—

Period	Acres Under Crop	Crop, Tons	Import, Tons	Annual Consumption, Tons
1869–75	63,000	24,600	8,400	33,000
1888–89	65,000	25,400	8,400	33,800

HORIZON

Objects at sea are visible at the following distances :—

Elevation, Feet	Miles	Elevation, Feet	Miles
5	3	200	18
10	4	300	23
20	6	500	30
50	9	800	37
100	13	1,000	42

* This table seems to omit Manilla, where there were 260,000 acres under hemp in 1880.

HORSES

The number in each country will be found under *Cattle*, p. 109. A horse lives 25 years, but a tramway horse lasts only five years : horse-flesh is eaten in France, the carcase yielding 450 lbs. meat. Napoleon in 1812 crossed the Niemen with 100,000 horses, of which 95,000 died before he reached Moscow.

HOTELS

On a given day in each year the number of guests in hotels at Paris was as follows :—

Year	Number of Hotels	French Guests	Foreign Guests	Total
1875	9,207	114,000	19,000	133,000
1879	10,189	140,000	41,000	181,000
1883	11,753	196,000	44,000	240,000

The hotels at Vienna admitted 240,000 guests during the whole year 1888. The hotels of Switzerland in 1889 were 1000 in number, making up 58,000 beds, employing 16,000 servants ; the invested capital was £1,600,000, receipts £1,680,000, expenditure £1,150,000, and profit £530,000.

HOUSES

The number of houses, inhabitants per house, and approximate value may be set down thus. We have no value as regards Portugal, which is estimated at the same ratio per inhabitant as in Spain :—

	Houses	Value, Millions £	Average per House, £	Average per Inhab., £	Inhab. per House
United Kingdom .	7,100,000	2,424	340	63	5.4
France . . .	9,080,000	1,704	187	45	4.2
Germany . . .	5,770,000	1,232	214	26	8.0
Russia . . .	11,436,000	701	62	8	8.0
Austria . . .	5,000,000	501	100	13	7.8
Italy . . .	4,420,000	394	90	13	6.6
Spain and Portugal .	3,810,000	410	107	20	5.6
Belgium . . .	1,060,000	106	100	18	5.8
Holland . . .	729,000	132	180	29	6.2
Scandinavia . .	1,200,000	137	114	16	7.0
Europe . . .	49,605,000	7,741	154	26	6.0
United States . .	11,400,000	2,850	250	46	5.5
Canada . . .	...		127	25	...
Australia . . .	...		239	67	...
Cape Colony . .	...		17	13	...
Argentina . . .	...		95	30	...
Uruguay . . .	...		28	45	...

The value of house property in cities was as follows :—

	Millions £	£ per Inhab.
London	673	153
Paris	286	128
Berlin	158	108
Vienna	102	130
Buenos Ayres . . .	85	153
New York	271	180
Boston	117	234
Sydney	90	245
Melbourne	92	209
Cape Town . . .	5	110

The annual increase of house property in various countries and cities is approximately as follows :—

	£			£
U. Kingdom	33,000,000	Sydney		6,700,000
London	10,100,000	Buenos Ayres		5,500,000
Scotland	2,400,000	United States		69,000,000
France	26,000,000	New York		6,400,000
Paris	5,200,000	Philadelphia		6,200,000
Hamburg	840,000	Toronto		320,000

Notable improvements in Paris and London have cost as follows :—

				Cost, £
Rue Rivoli, Paris	.	.	.	2,860,000
Boulevard Sebastopol	.	.		1,390,000
New Cannon Street, London	.			590,000
Victoria Street	.	.	.	330,000

Baron Haussman rebuilt a great portion of Paris in the years 1853 to 1869, at an outlay of 85 millions sterling.

UNITED KINGDOM

The number of houses, population per house, and approximate valuation for Great Britain down to 1811, and the United Kingdom afterwards, showed thus :—

Year	Houses	Pop. per House	Rental, £	Value, Millions £	Value per Inhab., £
1801	1,870,000	5.6	9,400,000	170	11
1811	2,102,000	5.7	14,000,000	252	14
1821	3,572,000	5.8	20,300,000	366	17
1831	4,101,000	5.9	24,500,000	441	18
1841	4,775,000	5.6	41,500,000	747	28
1851	4,694,000	5.8	50,000,000	900	33
1861	5,131,000	5.7	61,200,000	1,102	38
1871	5,632,000	5.6	86,400,000	1,555	48
1881	6,485,000	5.4	117,500,000	2,115	60
1888	7,100,000	5.4	134,700,000	2,424	63

In 1887 the valuation of houses in the principal cities was :—

	Rental, £	Value, Millions £	Per Inhabitant, £
London	37,400,000	673	153
Liverpool	3,300,000	60	100
Manchester	3,200,000	58	100
Birmingham	1,800,000	32	80
Leeds	1,200,000	22	63
Sheffield	1,100,000	20	63
Bristol	990,000	18	80
Bradford	980,000	18	80
Nottingham	920,000	16	70
Newcastle	860,000	15	105
Brighton	670,000	12	110

The highest prices paid in London for building sites have been :—

Year	Street	Feet	Sq. Feet	Price, £	£ per Sq. Foot	£ per Acre
1880	Cannon	12 × 50	600	4,500	7.5	330,000
1880	Grace Church	...	...	...	18.9	820,000
1886	Old Broad	42 × 30	1,285	37,000	28.8	1,260,000

In 1888 there were let on lease for eighty years six lots at Piccadilly and Charing Cross Road covering 19,000 square feet for £3600 per annum, being at the rate of £8300 per acre, the tenant erecting buildings worth £27,000. This would represent a selling value of £300,000 per acre for the land. House property has risen in value faster in London than throughout England. There is a house in Lombard Street, the rent of which was £25 a year in 1665, and the building on the same site is now rented for £2600 a year under lease from 1877. The value of land in the suburbs is also prodigious. An acre at Hampstead was recently leased for building at £1000 a year for eighty years.

The rental and value of London show as follows :—

Year	Houses	Rental, £	Value Million £	Miles of Streets	Value per Mile, £
1801	130,000	3,700,000	67	470	142,000
1811	155,000	4,500,000	82	560	146,000
1821	170,000	5,300,000	96	610	157,000
1831	197,000	6,900,000	124	700	177,000
1841	256,000	9,600,000	174	905	192,000
1851	301,000	12,600,000	229	1,050	218,000
1861	369,000	16,800,000	306	1,290	235,000
1871	445,000	23,900,000	434	1,550	280,000
1881	520,000	33,400,000	601	1,740	343,000
1888	600,000	37,400,000	673	2,010	335,000

Since 1861 the value of houses in London has risen 14 millions per annum, of which probably 30 per cent. was merely an enhancement of value, leaving about 10 millions a year as the cost of new buildings.

The number of new houses built within a radius of 15 miles from Charing Cross, London, and the length of new streets opened, were :—

Period	Houses Built	Streets, Miles Opened	Annual Average	
			Houses	Miles Street
1871–80	136,200	410	13,600	41
1881–88	142,100	278	17,800	35
18 years	278,300	688	15,400	38

Glasgow built £360,000 per annum in the years 1883–87, viz. :—

				£
Dwelling-houses	.	.	.	130,000
Churches and schools	.	.	.	49,000
Warehouses	.	.	.	121,000
Improvements, &c.	.	.	.	60,000
Total	.	.	.	360,000

The above, however, does not include the value of sites, but only the structures. The cost of public buildings varies. Churches and schools may be built at £10 per head of the intended number of occupants. Hospitals sometimes cost £300 per bed. Chelsea barracks cost £245 a man.

Dwellings for the working classes are an urgent necessity, and could easily be constructed in all large towns. Those built in London have cost from 6d. to 8d. per cubic foot, the sites costing from 2s. to 5s. per square foot, the whole outlay £36 per occupant, which involves an average rent of 2s. a week per room. The Peabody Buildings in 1889 showed an outlay of £900,000, including £500,000 given by the founder and £400,000 borrowed from Government ; they had 11,300 rooms, occupied by 20,400 persons, or 5070 families ; each family had weekly earnings that averaged 24s., and the average rent was 4s. 9d., or 26d. per room : gross rental £60,000, expenses and interest on loan £30,000, net profit £30,000. In 1882 Messrs. Guinness built in Dublin a block holding 540 rooms, to accommodate 180 families at 4s. a week. Sir Edward Guinness in 1889 gave £200,000 for a similar purpose in London.

The Town Council of Dublin also built a block for 1200 persons, on land which was bought at £6600 per acre : cost, £40,000 ; average rent, 4s. a week.

In a paper read by Mr. Hoey at the British Association,

1889, he stated that the population of Glasgow was lodged thus :—

Living in	Number of Souls	Death-rate per 1000
One room	133,000	35.0
Two rooms . . ;	235,000	27.7
Three to four rooms . }	158,000	19.5
Five or more rooms . }		11.2
Total . .	526,000	25.0

He further showed that the rents paid by the poor in London were exorbitant, a room 10 × 7 and 13 feet high, say 910 cubic feet, on a fifth floor, costing 18d. a week or £4 a year : often a whole family in a room 15 × 12 × 13, say 2300 cubic feet, paying 3s. or 4s. a week.

In 1887 the house property of the United Kingdom was as follows :—

	Rental, £	Value, Millions £	£ per Inhabitant
London	37,400,000	673	153
Ten large towns .	15,020,000	270	81
Rest of England .	64,780,000	1,166	55
England and Wales	117,200,000	2,109	73
Scotland	12,600,000	228	57
Ireland	3,500,000	63	13
United Kingdom .	133,300,000	2,400	63

There is no house-duty in Ireland. The houses subject to duty in Great Britain showed as follows :—

	1851	1871	1881
Subject to duty .	434,000	797,000	1,002,000
Exempt . . .	3,214,000	3,875,000	4,569,000
Total . .	3,648,000	4,672,000	5,571,000

This shows the great improvement in the class of houses ; in 1851 only 12 per cent. were subject to duty, the ratio being 18 per cent. in 1881. The average value of a house in the United Kingdom was as follows :—

Year	£	Year	£	Year	£
1801	. . . 90	1841	. . . 156	1871	. . . 278
1821	. . . 103	1851	. . . 190	1881	. . . 325
1831	. . . 108	1861	. . . 214	1888	. . . 340

The average value of a house is now more than double what it was in 1841.

ENGLAND AND WALES

In 1688 Gregory King estimated the house rental at two millions sterling. In 1798 it was put down at £6,500,000. The first official valuation was in 1812, viz., £8,490,000, and a later one in 1831 amounted to £12,350,000, but Porter showed that farmhouses and cottages were exempted. These would probably constitute one-third of the total. The rental would therefore be :—

Year	Rental, £	Value, Million £	£ per Inhabitant
1688	2,000,000	36	6
1798	6,500,000	117	14
1812	12,700,000	229	21
1831	18,500,000	333	24
1850	42,000,000	756	42
1860	52,000,000	936	47
1870	70,900,000	1,276	55
1880	100,100,000	1,802	69
1888	118,500,000	2,133	73

The number of houses and souls per house was as follows :—

Census	Houses.	Population per House
1801	1,576,000	5.6
1811	1,798,000	5.6
1821	2,088,000	5.8
1831	2,482,000	5.6
1841	2,944,000	5.4
1851	3,278,000	5.5
1861	3,740,000	5.4
1871	4,259,000	5.3
1881	4,832,000	5.4

Houses in England and Wales in 1862 :—

Annual Rental, £	Number	Aggregate Rental, £	Value, Millions £	Ratio
Over 1000 .	233	440,000	8	0.7
500–1000 .	924	650,000	12	1.1
200– 500 .	8,633	2,860,000	51	4.5
100–200 . .	32,806	4,830,000	86	7.6
50–100 . .	101,948	7,120,000	128	11.3
30–50 . .	169,920	6,880,000	124	11.0
20–30 . .	205,528	5,110,000	92	8.3
Under 20 .	3,624,608	34,700,000	626	55.5
Total .	4,144,600	62,590,000	1,127	100.0

Official returns for 1875 and 1886 compare as follows :—

Rental	1875	1886	Increase per Cent.	Amount of Rent 1875	Amount of Rent 1886
£				£	£
Under 20	3,922,000	4,626,000	18	28,600,000	38,000,000
20–50	394,000	595,000	51	11,700,000	17,800,000
50–100	119,000	167,000	40	7,700,000	10,800,000
Over 100	56,000	77,000	37	11,100,000	14,700,000
Total	4,491,000	5,465,000	22	59,100,000	81,300,000

The above is exclusive of shops, which were as follows :—

	Number	Rental, £
1875 . . .	295,000	14,300,000
1886 . . .	366,000	18,900,000

The valuations for house-duty are about 10 per cent. lower than the income-tax assessments.

SCOTLAND.

The number and rental valuation showed thus :—

Year	Number	Rental, £	£ per House	Capital Value, Millions £
1801 .	295,000	...	...	...
1811 .	304,000	...	...	...
1821 .	341,000	...	...	...
1831 .	369,000	...	...	...
1841 .	503,000	...	...	...
1851 .	370,000	5,000,000	14	90
1861 .	393,000	5,500,000	14	100
1871 .	412,000	7,300,000	18	131
1881 .	739,000	11,800,000	16	212
1888 .	...	12,700,000	...	229

Before 1851 the Census collectors counted as houses each separate holding or flat.

GREAT BRITAIN.

The following table shows the number of houses and approximate rental at each Census :—

Census	Number	Rental, £	Value, Millions £
1801	1,870,000	9,400,000	170
1811	2,102,000	14,000,000	252
1821	2,429,000	17,300,000	311
1831	2,851,000	21,500,000	387
1841	3,447,000	38,500,000	693
1851	3,648,000	47,000,000	846
1861	4,139,000	58,200,000	1,048
1871	4,672,000	82,700,000	1,489
1881	5,571,000	114,200,000	2,056

Colquhoun's classification of houses in Great Britain, excluding Ireland, in 1812 was as follows :—

Rental, £	Number			Value, Millions £
	Urban	Rural	Total	
Over 100 . .	6,500	500	7,000	18
40–100 . .	30,000	6,000	36,000	41
20–40 . . .	100,000	20,000	120,000	72
10–20 . . .	200,000	100,000	300,000	89
Under 10 . .	579,000	995,000	1,574,000	110
Total . .	915,500	1,121,500	2,037,000	330

A classification published in 1881 was as follows :—

Class	Houses	Rental, £	Average Rental, £	Ratio of Houses
1 . . .	21,000	14,000,000	665	0.4
2 . . .	238,000	28,500,000	120	4.3
3 . . .	512,000	17,900,000	35	9.3
4 . . .	1,294,000	19,400,000	15	23.4
5 . . .	3,410,000	34,400,000	10	62.6
Total .	5,475,000	114,200,000	21	100.0

The annual consumption of bricks was known down to 1850, when the tax was abolished. If the same ratio per house as in 1821–50 be supposed from 1850 to 1881, the consumption in sixty years will show thus :—

Annual Average

Period	Million Bricks	Houses Built	Bricks per Inhabitant
1821–30 . .	1,210	42,000	78
1831–40 . .	1,530	59,600	90
1841–50 . .	1,662	20,100	85
1851–60 . .	1,884	49,100	86
1861–70 . .	1,910	53,300	84
1871–80 . .	3,240	89,900	120

English bricks measure 9 × 4½ × 3 inches, and weigh 8 lbs., or 3 tons per 1000. An Adams or Liddell machine, 16-horse power, can make 30,000 daily, the average of hand-made bricks per moulder being 4000 a day. Fire-bricks will resist a crushing force varying from 600 up to 3000 lbs. per square inch.

IRELAND

The number of houses at each Census compared thus with population :—

Census	Number	Pop. per House	Census	Number	Pop. per House
1821	1,143,000	6.0	1861	992,000	5.8
1831	1,250,000	6.2	1871	960,000	5.6
1841	1,328,000	6.2	1881	914,000	5.7
1851	1,046,000	6.3	...	...	...

The Census of 1871 classified the houses the same as in 1841 thus :—

Houses of	1841	1871	Decrease, per Cent.
One room . . .	491,000	156,000	68
Two to four rooms	533,000	357,000	33
Five or more . .	304,000	449,000	...
Total . .	1,328,000	962,000	28

FRANCE

The number of houses and approximate value are shown thus :—

Year	Houses	Value, Millions £	Pop. per House	Windows per House	Value per House, £
1826	6,484,000	510	4.9	4.4	80
1836	6,805,000	720	5.0	4.5	105
1846	7,146,000	850	5.5	4.9	120
1856	7,633,000	985	4.8	5.0	130
1866	7,811,000	1,150	4.9	5.5	148
1882	8,813,000	1,550	4.3	5.6	175
1888	9,081,000	1,704	4.2	...	187

Lavoisier valued the houses in 1789 at 280 millions sterling ; Chaptal in 1815 at 462 millions. The next valuation was in 1835 by Moreau, only rural build-ings, which he set down at 161 millions sterling, an advance of 19 millions in twenty years. In 1869 the Embassy Report gives a total of 1200 millions, and in 1884 the Minister of Finance makes it 1600 millions sterling. This gives an average building value increase of 26 millions per annum, say 1704 millions for 1888. If we compare the houses of 1835 with those of 1888 we find as follows :—

Windows	Houses		Ratio	
	1835	1888	1835	1888
One . . .	2,164,000	2,047,000	32.2	22.4
Two to four	2,747,000	3,658,000	40.8	40.2
Five or more	1,816,000	3,376,000	27.0	37.4
Total .	6,727,000	9,081,000	100.0	100.0

Cabins of one window form a much smaller ratio, while houses of the best class have nearly doubled in number.

In eight years ending December 1887 the official re-turns showed as follows :—

	Number	Per Annum
New houses . .	1,048,000	131,000
Pulled down . .	703,000	88,000
Net increase .	345,000	43,000

The classification of houses in 1868 was as follows :—

Class	Houses	Ratio
Gentry . . .	158,000	2.2
Commercial, &c. .	583,000	7.9
Tradesmen .	2,167,000	29.4
Operatives, &c. .	4,453,000	60.5
Total .	7,361,600	100.0

The growth of house property in Paris was as follows :—

Year	Millions £	Per Inhabitant, £
1848	81	82
1860	188	109
1870	223	122
1882	286	128

The number of houses compared with population at two periods thus :—

Year	Houses	Population	Inhabitants per House
1817	28,800	714,000	25
1880	76,100	2,240,000	30

Each house represents nine *logements* or residences, owing to the custom of flats, and in 1882 these were 685,000 in number, and were let as follows :—

Rent, £	Number	Rental, £	Value, Millions £	Ratio
Over 500	1,920	1,100,000	17	6.0
160 to 500	13,100	4,200,000	63	22.0
40 to 160	65,250	6,300,000	94	32.7
15 to 40	135,400	2,800,000	42	14.8
Under 15	469,000	4,700,000	70	24.5
Total	684,670	19,100,000	286	100.0

In 1882 a sum of £1,100,000 was expended in buildings for the working-classes, to accommodate 3000 families or 10,000 souls, say £110 per head, each *logement* being supplied with gas and water, the rent 8s. a week : total rent £60,000 a year, or 5½ per cent. on first outlay. In 1879 the official estimated rental of all houses in France was 74 millions sterling, from which, for purposes of taxation, the Government allowed an abatement of 20 per cent. for repairs, &c., making the net rental 59 millions. In 1884 the Finance Minister estimated the gross rental at 88 millions sterling, which would represent a capital value of 1600 millions. The tax-collector's valuation the same year, after deducting one-fifth for repairs, was 1280 millions sterling, which confirms the Minister's estimate as above. Building sites in Paris, according to Yves Guyot, have quintupled in value in sixty years ; the highest price in 1826 being £18 per square metre, and in 1883 ranging from £80 to £120 : the maximum may therefore be taken as £10 per square foot, against £20 in London (even £30 having been paid in the latter city). In 1887 there were 250,000 persons in Paris living in furnished apartments, say 11 per cent. of the population :—

Ordinary Rent per Annum

Unfurnished	£	Furnished (Boulevards)	£
1 room, suburbs	8	3 rooms, 5th flat	160
2 rooms, suburbs	12	3 rooms, 4th flat	200
2 rooms, Passy	15	3 rooms, 3rd flat	250
2 rooms, Madeleine	20	3 rooms, 2nd flat	300
2 rooms, Rue Rivoli	30	4 rooms, Rue Rivoli	400
3 rooms, Rue Rivoli	50	5 rooms, Rue Rivoli	600

GERMANY

An official report for Prussia in 1869 gave the number and rental of houses. In the following table the value is capitalised at 18 times the rental :—

	Number	Rental, £	Value, Millions £
Urban	467,000	8,400,000	151
Rural	1,701,000	5,100,000	92
Total	2,168,000	13,500,000	243

In the same year the urban house property of Saxony was valued at 70 millions sterling, that of rural being apparently no more than 10 millions. These two kingdoms form exactly two-thirds of the German Empire as regards population, and we may conclude that the total house property of Germany in 1869 was of the value of 485 millions sterling. Official returns for Berlin show as follows (except that the capitalisation at 18 years' rent is mine) :—

Year	Number of Houses	Rent, £	Value, £	Value per House, £
1867	14,100	3,390,000	61,100,000	4,400
1872	15,050	5,370,000	96,700,000	6,500
1882	19,700	8,800,000	158,400,000	8,000

The total value of house property in 1888 may be estimated thus :—

	Population	Houses, Millions £	£ per Head
Berlin	1,460,000	158	108
114 cities	6,900,000	310	45
Rural districts	38,200,000	764	20
Total	46,560,000	1,232	26

In four years ending 1886 Hamburg put up new suburbs and houses worth £3,350,000, say £840,000 per annum, the value of the sites being 60, and the buildings 40 per cent. of the total. Overcrowding in the large cities is as bad as in England, official returns showing the ratio of population living in one room as follows :—

City	Year	Per 1000 Inhab.	City	Year	Per 1000 Inhab.
Königsberg	1864	560	Leipzig	1871	471
Chemnitz	1871	702	Hamburg	1875	356
Frankfort	1871	225	Leipzig	1875	214

There was a marked improvement in Leipzig between 1871 and 1875 ; in the former year 108 per 1000 of the population lived in cellars.

In 1875 Leipzig had 3455 houses (comprising probably 18,000 flats or residences), which contained 140,000 souls, viz.:—

Class of House	Inhabitants per House	Number of Houses	Approximate Population
1st	Up to 10	481	4,000
2nd	11–20	661	10,000
3rd	21–40	1,138	36,000
4th	Over 40	1,175	90,000
Total	...	3,455	140,000

RUSSIA

There are 11,436,000 houses, but no returns of valuation. Strebinsky estimated the poorest kind of rural dwellings at £27 sterling, and a general average of £40 may be taken. As regards the 787,000 houses in cities, they may be estimated at 10 per cent. per inhabitant less than in Germany. The account will stand thus :—

	Houses	Population	Per Inhabitant, £	Value, Mill. £
St Petersburg 87 cities	787,000	810,000	97	79
		4,900,000	40	196
Rural	10,649,000	78,200,000	5½	426
Total	11,436,000	83,910,000	7½	701

Of the houses in St. Petersburg and 87 other cities there were 127,000 of stone and 660,000 of wood ; perhaps the term stone also includes brick.

In 1867 Buschen estimated the value of all buildings in Russia at 270 millions sterling, that is, dwelling-houses 150 millions, factories, &c., 120 millions.

AUSTRIA-HUNGARY

The last Census does not give the number of houses in Hungary, which may, however, be estimated at 2,000,000. The number in Austria has increased in the same ratio as population :—

	1840	1880
Austria	2,364,000	2,996,000
Hungary	1,732,000	2,000,000
Total	4,096,000	4,996,000

In Austria the houses in 1880 were as follows :—

	Number	Approximate Value, £	Per House, £
Vienna	183,900	102,000,000	545
Towns	388,100	77,600,000	200
Rural	2,424,000	121,200,000	50
Total . .	2,996,000	300,800,000	100

The house property of Hungary, at the same general ratio of £100 per house, would amount to 200 millions sterling, making a total of 501 millions for the whole Empire. In 1883 Roschmann valued the houses of Austria (without Hungary) at 256 millions sterling ; but this seems 15 per cent. too low.

In 1886 the annual rental of Vienna showed as follows :—

Rent	Houses	Gross Rental, £	Ratio of Houses
Under £20 . .	89,192	1,200,000	48.5
20–50	68,993	2,200,000	37.5
50–100	17,736	1,200,000	9.7
Over 100 . . .	7,985	1,100,000	4.3
Total . .	183,906	5,700,000	100.0

ITALY

Neumann Spallart estimates the house property of Italy at 360 millions sterling, although the official value in 1881 was only 240 millions, but the latter was confessedly one-third too low. The *Archivio* gives the value in 1880 as 380 millions sterling. Approximately the house property may be estimated thus :—

	Houses	Population	Rental, £	Value, Millions £	£ per Inhab.
Urban .	650,000	5,100,000	8,400,000	153	30
Rural .	3,770,000	24,100,000	13,400,000	241	10
Total	4,420,000	29,200,000	21,800,000	394	13

The house property of Rome is estimated at 14 millions sterling, or about £45 per inhabitant.

HOLLAND

The official returns of house property show number and rental :—

Year	Houses Taxed	Rental, £	Value, £
1877 .	372,400	6,060,000	109,000,000
1883 .	398,900	6,660,000	120,000,000

This represents only the houses above a certain letting value, as the Census of 1879 showed 729,000 inhabited houses, of which 379,000 were subject to house-duty, and

350,000 were exempted. The assessment of 1880 showed as follows :—

Over £80 rental	13,673
£32 to £80	30,558
Under £32	313,218
Total . . .	357,449

We may add 10 per cent. to the official valuation, say 12 millions sterling, as the value of the untaxed houses, which is equal to £34 per house. This makes the total house property of Holland worth 132 millions sterling.

SPAIN

In 1832 the *Junta de Medios* valued all buildings at 243 millions sterling, of which 68 millions were for public buildings and factories, the rest for dwelling-houses : the average was £20 per head of the population, and at the same rate Spain would now have 340 millions worth of house property distributed approximately as follows :—

	Houses	Population	Rental, £	Value, Millions £	£ per Inhab.
28 cities	380,000	2,100,000	5,000,000	90	45
Rural .	2,600,000	14,800,000	14,000,000	250	17
Total	2,980,000	16,900,000	19,000,000	340	20

SCANDINAVIA

Official valuations of house property in Sweden distinguish urban from rural ; in Norway, give only urban, and in Denmark, confuse the same with landed property. The values are approximately as follows :—

	House Property, Millions £			£ per Inhabitant		
	Urban	Rural	Total	Urban	Rural	Total
Sweden . .	64	16	80	72	4	17
Norway . .	10	7	17	30	4	9
Denmark .	31	9	40	60	6	20
Total .	105	32	137	63	5	16

In Sweden 9 per cent. of house property stood for schools, &c.

BELGIUM

The Census returns of Belgium show :—

Year	Number of Inhabited Houses	Population per House
1846 . . .	799,000	5.42
1856 . . .	834,000	5.43
1866 . . .	930,000	5.19
1880 . . .	1,061,000	5.20

The official rental valuation in 1884 was £5,900,000, equal to a capital value of 106 millions sterling.

UNITED STATES

The Census of 1880 showed 8,956,000 houses. Compared with the numbers at previous Censuses, the existing houses in 1880 would appear approximately as follows :—

		Ratio
Built before 1840 . .	2,430,000	27.4
,, 1840–1850 . .	932,000	9.4
,, 1850–1860 . .	1,608,000	18.2
,, 1860–1870 . .	2,073,000	23.4
,, 1870–1880 . .	1,913,000	21.6
Total . .	8,956,000	100.0

The first settlers lived in wooden houses, the ordinary cost of which, in 1684, was estimated at £5 sterling, a clergyman's house costing £35. Fires were frequent. The first brick-kiln was at Salem, Massachusetts, in 1629, and Mr. Coddington built the first brick house at Boston in 1638, the number reaching 1000 by the year 1700. The house which W. Penn built at Philadelphia was of bricks brought from England, and cost £5000.

The earliest estimate of house property was in 1790, when there was found to be 277,000 houses, valued at £29,200,000 sterling, being £105 per house. The number of houses at the following dates was :—

Year	Houses	Population	Inhabitant per House
1840 . .	2,430,000	17,069,000	7.1
1850 . .	3,362,000	23,192,000	6.9
1860 . .	4,970,000	31,443,000	6.3
1870 . .	7,043,000	38,558,000	5.5
1880 . .	8,956,000	50,410,000	5.5

According to the Census of 1840, there were 54,100 houses built during the year, namely, 45,700 of wood, and 8400 of brick or stone, representing a total value of £8,800,000, say £160 per house, viz. :—

State	Houses Built	Value, £	Value per House, £
New York . . .	6,400	1,520,000	240
Pennsylvania . .	4,400	1,100,000	250
Illinois	4,400	440,000	100
Ohio	3,800	790,000	210
Massachusetts .	1,600	580,000	360
Other States . .	33,500	4,370,000	130
Total . .	54,100	8,800,000	160

The number of new houses built yearly in the Union since 1840 is shown officially as follows :—

1841–50	93,200
1851–60	161,000
1861–80	199,000
1887	303,000

In 1880 the Census showed 156,000 men engaged in building, the annual value of new houses being put down at 35 millions sterling, but in 1887 it was estimated at 86 millions sterling ; the average cost of city houses was estimated at £940, and of rural at £210 each. The following annual returns of city buildings are given :—

City	New Houses	Value, £	Value per House, £	Years
New York .	1,950	6,400,000	3,240	1886–88
Philadelphia	8,202	6,240,000	760	1888
Kansas City	4,510	2,040,000	440	1886–88

The value of house property in some cities was as follows :—

Year	City	Value, Millions £	Population	£ per Head
1888	New York .	271	1,500,000	180
1888	Boston . .	117	500,000	234
1880	Philadelphia .	119	850,000	140
1880	Brooklyn . .	45	570,000	80
1880	St. Louis . .	32	350,000	92
Total	...	584	3,770,000	155

The increase of value in New York from 1880 to 1888 was 49 millions sterling, that is, 7 millions per annum. There is no city in England equal in valuation per inhabitant to Boston or New York, but the Australian cities are higher, Melbourne being £29 higher than New York, and Sydney £11 over Boston.

The average value of each house built in 1840 was £160, and in 1887 it was £285. The total value of house property in the Union may be estimated for various dates thus :—

Year	Houses	Average Value, £	Millions, £	£ per Inhab.
1870 . .	7,043,000	220	1,550	40
1880 . .	8,956,000	240	2,160	43
1890 . .	11,400,000	250	2,850	46

This shows an average value per head much below what it is in England, namely, £73.

CANADA

In Montreal the years 1887–88 averaged 1005 new houses, valued at £860,000, say £860 each, or £100 higher than in Philadelphia. The value of houses built at Toronto during the year 1880 was £320,000. In 1887 Upper Canada had, by official returns, a value of £38,500,000 in farm-buildings exclusive of towns. The total value of house property in the Dominion may be estimated thus :—

	Population	House Value £ per Head	Millions £
Urban . .	460,000	60	27
Rural . . .	4,560,000	22	100
Total .	5,020,000	25	127

AUSTRALIA

House property is much more valuable compared with population than it is in Europe. In 1888, for example, Sydney and Melbourne showed thus :—

	Population	Rental, £	Value, £	£ per Inhabitant
Sydney . .	367,000	5,220,000	78,300,000	211
Melbourne .	438,000	5,320,000	79,800,000	181

There is at Melbourne a block of houses valued at £494,000, the site of which was bought in 1838 for £45, and close to it is Menzies' Hotel, recently sold for £150,000, the site of which cost £10 in 1840.

The following table shows approximately the value of all house property in the seven colonies : —

	Value, Millions £			£ per Inhabitant		
	Urban	Rural	Total	Urban	Rural	Total
N. S. Wales .	78	14	92	211	21	83
Victoria . . .	80	11	91	181	18	83
New Zealand .	20	5	25	100	10	40
South Australia	11	2	13	100	10	40
Queensland . .	9	3	12	100	10	30
Tasmania . .	4	1	5	100	10	33
W. Australia .	1	...	1	100	10	25
Total . .	203	36	239	170	15	67

CAPE COLONY

In 1883 the house property of the principal towns was officially valued thus :—

	Population	Value, £	£ per Inhabitant
Cape Town . .	45,000	4,980,000	110
Port Elizabeth .	13,000	1,950,000	150
Kimberley . . .	14,000	1,710,000	122
Total . .	72,000	8,640,000	120

HONG-KONG

In 1889 the best building sites fetched £3 per square foot, or £130,000 per acre.

ARGENTINE REPUBLIC

The classification of houses at Buenos Ayres in 1889 was as follows :—

Yearly Rent	Houses	Approximate Value, £
Under £50 . . .	3,067	1,600,000
£50-£100 . . .	10,320	9,500,000
£100-£200 . . .	12,506	23,600,000
£200-£300 . . .	6,512	21,100,000
Over £300 . . .	4,835	28,700,000
Total . .	37,248	84,500,000

The increase in eight years was exceedingly rapid, the official returns for 1881 having shown 22,700 houses valued at £39,800,000 and owned as follows :—

	Value, £
By Argentines	22,800,000
Italians	6,800,000
Other foreigners	10,200,000
Total .	39,800,000

In eight years there were built 14,500 new houses, and the average annual increase of house property was £5,500,000 sterling. The average value of each house was £1700 in 1881 and £2,300 in 1889. The province of Buenos Ayres, outside the city, had 106,000 houses in 1881, valued at £12,300,000, say £120 per house or £22 per inhabitant. The houses in the other 13 provinces were estimated at 35 millions sterling, or £17 per inhabitant. The total for the Republic, including public buildings, was £94,500,000.

URUGUAY

In 1884 the value of house property was 28 millions sterling, about £45 per inhabitant. New houses at Monte-Video show an average of £230,000 per annum.

HUNTING

UNITED KINGDOM

The annual shooting is estimated thus :—

	Number	Value, £
Hares and rabbits .	30,000,000	2,200,000
Grouse . . .	500,000	50,000
Partridges . .	400,000	30,000
Pheasants, &c. .	900,000	90,000
Deer . . .	10,500	50,000
Total . .	...	2,420,000

BELGIUM

The number of shooting licenses issued was 12,900 in 1888, against 10,600 in 1860, and 6100 in 1840. The value of game killed yearly in the forests is 14 francs per hectare or 5s. an acre.

FRANCE

The State pays £3 for each wolf killed. The numbers killed were :—

1882 . . .	1,225	1886 . . .	760
1885 . . .	900	1887 . . .	701

Game licenses average 350,000 yearly. French writers estimate the number of rabbits killed yearly in France at 70 millions.

GERMANY

Game licenses, 146,000 ; slaughter, 20,000 foxes, 30,000 deer, 2,000,000 hares, 3,000,000 partridges. The annual fair at Leipzig shows a sale of several million skins. In 1880 there were sold :—

Bear . . .	6,000	Ermine . .	160,000
Sable . . .	54,000	Fox . . .	180,000
Otter . . .	66,000	Skunk . .	950,000
Beaver . . .	80,000	Squirrel, &c. .	4,850,000
Wild cat . .	125,000		

The forests of Prussia in 1859 contained 6000 wild boars and 151,000 deer.

RUSSIA

In Russia and Siberia the annual slaughter of fur-bearing animals is as follows: 50,000 martens, 3 million ermines, 15 million marmots, 25 million squirrels. The Russian forests contained in 1880 over 170,000 wolves, which devoured 200 children or travellers per annum. In 1889 Russian peasants killed or captured 318 boars, 85 wolves, 503 foxes, 14,834 hares, 71,960 squirrels, 539 martens, &c. On the other hand, bears and wolves destroyed between them 500 horses, more than 1000 oxen, and over 4000 other domestic animals.

AUSTRIA

The slaughter of large game in the whole Empire averages thus :—

Bears	160	Wolves . . .	1,200
Lynxes	200	Foxes . . .	8,000

Besides 3000 tiger-cats and various other kinds. The returns of game killed in Austria proper showed in 1885 thus :—

Bears . . .	22	Wild boars . .	3,000
Wolves . . .	113	Hares . .	1,430,000
Lynxes . . .	24	Woodcock . .	12,500
Foxes . . .	26,400	Pheasants . .	103,000
Martens . . .	9,700	Partridges .	1,336,000
Deer . . .	72,500	Snipe . .	99,000
Chamois . . .	7,700	Wild duck . .	50,300

SWEDEN

The annual slaughter averaged as follows :—

	1827–36	1850–59	1867–76
Bears	135	118	110
Lynxes	243	140	91
Wolves	542	162	53
Foxes	7,882	5,396	...

About 5000 eagles and vultures are shot yearly in Sweden: in 1868 the number killed was 27,000. Laplanders sometimes follow a wolf 200 miles to kill him. Of foxes about 10,000 are killed yearly, 5000 skins being annually exported: in 1867 there were 18,000 killed. The annual killing of martens reaches 1000, and of ermines and otters 3000.

FINLAND

In Finland wolves destroy 5500 horned cattle yearly. The average of wild beasts killed in the decade ending 1870, per annum, was :—

Bears . .	104	Lynxes . .	42	Gluttons . .	35
Wolves . .	393	Foxes . .	2,046	Martens . .	5

EAST INDIES

In Java there are 270 persons killed by tigers, and 180 by crocodiles, yearly. In India 23,000 persons and 68,000 cattle are killed yearly by tigers, snakes, &c. The Indian Government pays £16,000 per annum for killing 20,000 wild beasts and 560,000 snakes. In Cochin-China the French killed in 1882 no fewer than 109 tigers and 25 panthers.

UNITED STATES

Between 1860 and 1882 more than 15 millions of bison were killed.

I.

ICE

The consumption in the United Kingdom exceeds 500,000 tons yearly, the quantity imported averaging 300,000 tons, mostly from Norway. The ice-crop of the United States, according to Simmonds, averages 12 million tons, of which the Hudson supplies 2,400,000. The capital employed in this trade in the United States has been estimated at 8 millions sterling: the ice, when cut, is valued at 4s. a ton, but is retailed at 12s. Some of the cities of the world consume as follows:—

				Tons		Lbs. per Inhab.
London	.	.	.	200,000	...	102
Paris	.	.	.	60,000	...	60
New York	.	.	.	700,000	...	1,300
Boston	.	.	.	100,000	...	700

Russia consumes enormous quantities, St. Petersburg alone counting 10,000 ice-houses.

INCOME

The subjoined table shows approximately the annual earnings or income of nations. It is compiled thus: 90 per cent. of agricultural values, 90 per cent. of mining, 60 per cent. of manufactures. Transport is computed at 10 per cent. on the gross value of agriculture, mining, and manufactures; house-rent, according to the assessed valuation or the nearest estimate; commerce, 10 per cent. on imports and exports; shipping, 30s. per ton yearly of carrying power; banking, 5 per cent. on banking power; and furthermore an allowance of 10 per cent. on the total of the preceding eight items, to cover the earnings of domestic servants, learned professions, army, police, civil service, &c. This is, of course, a conventional method for estimating the earnings of nations, but will answer fairly well for the sake of comparison.

NATIONAL EARNINGS FROM VARIOUS SOURCES

	MILLIONS £ STERLING										Per Inhab., £
	Agriculture	Mining	Manufactures	Internal Transport	House Rent	Commerce	Shipping	Banking	Professions	Total	
U. Kingdom .	226	53	492	113	135	74	30	45	117	1,285	33.7
France .	414	9	291	96	93	31	4	13	95	1,046	27.8
Germany .	382	22	350	103	68	37	4	12	98	1,076	22.2
Russia .	507	14	218	94	34	12	2	5	89	975	11.5
Austria .	298	7	152	59	27	9	1	7	56	616	15.5
Italy .	184	2	73	33	22	9	2	5	33	363	12.2
Spain .	156	4	51	27	18	6	2	2	27	293	16.5
Portugal .	28	1	10	5	4	2	...	...	5	55	12.1
Sweden .	44	1	30	10	4	3	1	1	10	104	22.0
Norway .	15	1	12	4	1	1	3	...	4	41	20.5
Denmark .	31	...	16	6	2	3	1	1	6	66	32.5
Holland .	35	...	21	8	7	20	1	1	9	102	22.6
Belgium .	50	6	61	17	6	11	...	1	15	167	28.0
Switzerland.	17	...	19	5	2	6	...	1	5	55	19.0
Europe .	2,387	120	1,796	580	423	224	51	94	569	6,244	19.4
United States .	698	96	856	231	157	32	12	52	214	2,358	39.0
Canada .	50	2	39	12	7	4	2	2	12	130	26.0
Australia .	56	7	25	10	13	12	1	7	13	144	40.2
Argentina .	38	...	24	8	5	3	...	1	8	87	24.0
Total .	3,229	225	2,750	841	605	275	66	156	816	8,963	20.8

UNITED KINGDOM

The income of the nation has been estimated thus:—

Year	Millions £	Per Inhabitant, £	Kingdom
1664	42	7.8	England and Wales
1688	45	8.2	,,
1770	122	16.3	,,
1800	230	26.0	,,
1822	280	19.8	Great Britain
1840	504	19.2	United Kingdom
1860	760	26.2	,,
1889	1,285	33.6	,,

King's classification in 1688 compares with later dates:—

A.D. 1688

Class	Families	Average Income, £	Amount, £
Gentry . .	16,500	360	6,000,000
Middle . .	114,000	105	12,000,000
Trades . .	310,000	50	15,500,000
Working .	759,500	15	11,500,000
Total .	1,200,000	37	45,000,000

A.D. 1800

Class	Families	Average Income, £	Amount, £
Gentry . .	36,000	770	28,000,000
Middle . .	181,000	315	57,000,000
Trades . .	446,000	150	67,000,000
Working .	1,117,000	70	78,000,000
Total .	1,780,000	127	230,000,000

A.D. 1889

	Families	Average Income, £	Amount, £
Gentry . .	222,000	1,500	333,000,000
Middle . .	604,000	400	241,000,000
Trades . .	1,220,000	200	244,000,000
Working .	4,774,000	97	467,000,000
Total .	6,820,000	188	1,285,000,000
England . .	5,200,000	208	1,084,000,000
Scotland . .	740,000	173	128,000,000
Ireland . .	880,000	84	73,000,000
United Kingdom	6,820,000	188	1,285,000,000

Professor Leone Levi in 1884 estimated the earnings of the people as follows :—

	Millions £ Sterling Yearly			
	England	Scotland	Ireland	U. Kingdom
Upper class . .	477	59	36	572
Middle class . .	98	14	8	120
Working class .	401	62	42	505
Total . .	976	135	86	1,197

He estimated the wage-earners in 1884 as follows :—

	Number	Millions £	£ per Head
Professional . .	300,000	16	53
Domestic . . .	2,400,000	86	36
Commercial . .	900,000	45	50
Agricultural . .	1,900,000	67	35
Industrial . . .	6,700,000	307	46
Total . .	12,200,000	521	43

	Workers	Millions £	£ per Head
England . . .	8,600,000	401	47
Scotland . . .	1,500,000	62	41
Ireland	1,800,000	42	23
Undefined . .	300,000	16	53
Total . .	12,200,000	521	43

	Number	Millions £	£ per Head
Males under 20 .	1,650,000	29	18
,, 20–65 . .	6,530,000	363	56
Females under 20	1,300,000	30	23
,, 20–65 .	2,720,000	99	37
Total . .	12,200,000	521	43

According to income-tax assessments, the number of persons in the United Kingdom since 1860, and Great Britain before that date, having an income of £200 or upwards yearly, was as follows :—

Year				Number	Per Million Population
1812	.	.	.	39,765	3,314
1850	.	.	.	65,389	3,115
1860	.	.	.	85,530	2,949
1870	.	.	.	130,375	4,206
1880	.	.	.	210,430	6,313

The number of persons enjoying great wealth has by no means increased in the same ratio. Assessments over £5000 a year showed as follows :—

Year				Number	Per Million Population
1812	.	.	.	409	34
1850	.	.	.	1,181	56
1860	.	.	.	1,558	53
1870	.	.	.	2,080	67
1880	.	.	.	2,954	88

Taking the relative numbers of each class to the whole population, we find :—

Persons of	Per Million Inhabitants		Rate of Increase
	1860	1880	
Great wealth . .	53	88	66 per cent.
Easy fortune . .	2,949	6,313	112 ,,

This shows a greater diffusion of wealth, contrary to the common impression that "the rich are getting richer every day."

The classification of incomes in 1877 was as follows :—

	Over £10,000	£1000 to £10,000	£150 to £1000	Total
England . .	975	18,622	275,733	295,330
Scotland . .	147	2,191	27,642	29,980
Ireland . .	35	878	14,473	15,386
U. Kingdom	1,157	21,691	317,848	340,696

The earnings of the classes which pay income-tax are supposed to reach just one-half those of the nation. Levi made the earnings of the working-classes in 1883 amount to 521 millions, and Jeans in 1884 to 535 millions sterling. The assessments to income-tax have more than doubled since 1850, the following table including an estimate of 18 millions for Ireland in 1850 (in which year that country was exempt from this tax) :—

Year	Annual Income, Millions £			
	Houses	Lands	Professions, &c.	Total
1850 . . .	47	56	171	274
1860 . . .	61	58	216	335
1870 . . .	77	65	303	445
1880 . . .	115	70	392	577
1888 . . .	135	61	440	636

Year	England	Scotland	Ireland	United Kingdom
1860 . . .	282	30	23	335
1870 . . .	379	40	26	445
1880 . . .	486	56	36	578
1888 . . .	543	57	36	636

The relative increase of the several items of income since 1850 showed thus :—

Year	Houses	Lands	Railways	Professions	Total
1850 . . .	100	100	100	100	100
1860 . . .	130	104	143	125	122
1870 . . .	164	116	228	174	162
1880 . . .	238	123	295	228	211
1888 . . .	280	107	351	252	232

The relative increase of each of the three kingdoms since 1860 was :—

Year	England	Scotland	Ireland	United Kingdom
1860 . . .	100	100	100	100
1870 . . .	134	133	113	133
1888 . . .	193	190	156	191

FRANCE

The income has been estimated as follows :—

Year	Millions £	£ per Inhab.	Population
1780 . . .	160	6.1	26,300,000
1800 . . .	216	7.7	27,400,000
1820 . . .	315	10.4	30,300,000
1840 . . .	480	14.1	34,000,000
1868 . . .	806	21.6	37,500,000
1888 . . .	1,046	27.8	38,500,000

The distribution of income, according to house valuation, seems to be approximately as follows :—

Class	Number of Families	Average Income, £	Amount, Millions £
Rich . . .	160,000	800	128
Middle . .	1,700,000	260	442
Working . .	6,000,000	79	476
Total .	7,860,000	133	1,046

GERMANY

In 1885 Soetbeer and others estimated the earnings of the people of Prussia, Saxony, and Baden at 517 millions sterling, to which adding *pro rata* for the rest of Germany, the table stands thus :—

	Population	Earnings, £	Per Head, £
Prussia	28,300,000	438,000,000	15.5
Saxony	3,180,000	57,100,000	18.0
Baden	1,600,000	22,400,000	14.0
Bavaria, &c. . .	13,770,000	220,000,000	16.0
Total . .	46,850,000	737,500,000	15.8

The above, perhaps, has reference only to the classes liable to income-tax, the total being manifestly too low to include also the working-classes.

The income-tax assessments of Prussia in 1881 and 1886 were as follows :—

Income,	Families Assessed	
	1881	1886
£150 to £210 . . .	79,000	89,600
£210 to £480 . . .	71,700	82,400
Over £480 . . .	21,800	26,800
Total . .	172,500	198,800

The above comprises only families with incomes over £150 a year. In 1883 there were 7,800,000 persons paying a poll-tax whose incomes were under £150. In Saxony the income assessments were :—

Year	Number	£
1875 . . .	972,000	50,900,000
1884 . . .	1,213,000	57,100,000

The annual earnings of the whole Empire would seem to be distributed approximately as follows :—

Class	Families	Average, £	Total, Millions £
Rich	150,000	1,230	185
Middle	1,200,000	240	288
Working . . .	8,050,000	75	603
Total . .	9,400,000	114	1,076

According to the scheme laid down in page 320, the

gross earnings of the German people in 1889 amounted to 1076 millions sterling, or £22 4s. per inhabitant, against £28 in France, and £34 in the United Kingdom.

AUSTRIA

Neumann Spallart estimated the national earnings at 600 millions sterling in 1874, as compared with 430 millions in 1868, and 336 millions in 1859, this last being Czernig's estimate. If we take the florin at its nominal value of 24d., the estimate of Roschmam for 1883 will be 650 millions sterling ; but if we allow for the depreciation of the currency, it will not exceed 610 millions. My estimate for 1888 is 616 millions sterling, as shown in the table.

ITALY

Official returns published in 1881 give a very inadequate idea of the earnings of the nation ; the first two columns are official, the last is the apparent result :—

Income,	Number Assessed	Gross Result, £
Under £40 . . .	559,000	8,400,000
£40 to £200 . .	71,000	7,100,000
£200 to £400 . .	5,300	1,600,000
Over £400 . .	3,200	11,300,000
Total .	638,500	28,400,000

As already shown, the earnings of the Italian nation are about 364 millions sterling, or £12 per inhabitant, which is less than half the average per head in France.

UNITED STATES

In 1840 Tucker's estimate of the earnings of the American people was 1066 millions dollars, or 221 millions £ sterling, made up thus :—

	£
Product of farms . . .	137,200,000
Manufactures, &c. . . .	83,600,000
Total . .	220,800,000

The above estimate was too low, seeing that agricultural products were worth 184 millions sterling (as already shown).

The national earnings at various dates are shown approximately thus :—

	Millions £		
	1850	1870	1886–89
Agriculture . . .	225	452	698
Manufactures . . .	127	444	866
Mines . . .	40	60	96
Transport . . .	50	130	231
Commerce . . .	7	17	32
Shipping . . .	7	10	12
Banking . . .	5	19	52
Sundries . . .	109	218	371
Total .	570	1,350	2,358

AUSTRALIA

Mr. Coghlan, Government statist, estimates the fruits of all industries as follows :—

	Farming	Mining	Manufactures, &c.	Total	Per Inhabitant
	£	£	£	£	£
New South Wales . . .	17,200,000	3,800,000	6,600,000	27,600,000	25.1
Victoria . . .	13,600,000	2,700,000	7,100,000	23,400,000	21.3
Queensland . . .	8,300,000	2,100,000	2,300,000	12,700,000	32.0
South Australia . . .	7,700,000	400,000	1,600,000	9,700,000	31.0
New Zealand . . .	12,600,000	1,200,000	3,300,000	17,100,000	28.5
Tasmania . . .	1,900,000	500,000	900,000	3,300,000	22.0
Western Australia . . .	900,000	200,000	300,000	1,400,000	33.0
Total . .	62,200,000	10,900,000	22,100,000	95,200,000	26.4

The above takes no account of transport, shipping, banking, commerce, &c., which brings up the total earnings to 144 millions sterling.

INDIANS

The number in the United States in 1830 and in 1880 was :—

	1830	1880
East of Rocky Mountains	213,100	188,400
West ,, ,,	100,000	143,700
	313,100	332,100

In 1830 some of the States had the following Indian population :—

Mississippi	23,400	Missouri	5,600
Alabama	19,200	New York	4,800
Michigan	9,400	Indiana	4,100
Arkansas	7,200	Florida	4,000
Illinois	5,900		

In 1837 the principal tribes were as follows :—

East of Mississippi

Cherokees	22,000	Winnebagos	4,500
Chippewas	6,500	Various	11,365
Seminoles	5,000		
		Total	49,365

West of Mississippi

Blackfeet	30,000	Pawnees	12,500
Sioux	21,600	Eutaws	19,200
Creeks	20,437	Crows	7,200
Apaches	20,280	Various	117,710
Camanches	19,200		
Choctaws	15,000	Total	283,127

In 1880 the principal tribes were :—

Cherokees, Choctaws	47,800
Esquimaux, &c.	62,400
Shoshones, Snakes	25,300
Dacotah, Sioux	28,100
Crow, Flathead	19,400
Pawnee, Fox	18,100
Apaches, Navajas	20,100
Oregon, Arizona, &c.	111,000
Total	332,100

	Civilised	Half-Civilised	Savage	Total
Population	104,800	144,300	83,000	332,100
Acres tilled	273,000	157,000	...	430,000
Grain, bushels	2,780,000	1,070,000	...	3,850,000
Hay, tons	177,000	48,000	...	225,000
Vegetables, tons	8,500	9,800	...	18,300
Churches	117	...	...	117
Schools	344		...	344
Pupils	13,350		...	13,350
Horses	301,000		...	301,000
Cows	311,000		...	311,000
Sheep	447,000		...	447,000
Pigs	214,000		...	214,000

The number of Indians who vote as American citizens is 24,600. That of Indians paying tax was as follows :—

State	1870	1880	Increase
California	7,241	16,277	9,036
New Mexico	1,309	9,772	8,463
Michigan	4,926	7,249	2,323
Washington Territory	1,319	4,405	3,086
Arizona	31	3,493	3,462
Wisconsin	1,206	3,161	1,955
Various	9,699	22,050	12,351
Total	25,731	66,407	40,676

In Canada a report on Indians in 1880 was as follows :—

	Number	Property, £	£ per Head
Ontario	16,000	1,968,000	123
Quebec	11,000	363,000	33
Manitoba, &c.	75,400	...	...
Total	102,400	...	...

INDUSTRIES

The following table shows approximately the value yearly of the chief occupations of mankind :—

	Millions £ Sterling *						
	Agriculture	Manufactures	Mining	Transport	Commerce	Total	£ per Inhabitant
U. Kingdom	251	820	60	113	740	1,984	52
France	460	485	10	96	310	1,361	36
Germany	424	583	25	103	370	1,505	32
Russia	563	363	15	94	120	1,155	13
Austria	331	253	6	59	95	744	19
Italy	204	121	2	33	95	455	15
Spain	173	85	4	27	60	349	20
Portugal	31	16	1	5	20	73	16
Sweden	49	50	1	10	30	140	30
Norway	17	19	1	4	10	51	25
Denmark	35	26	...	6	25	92	46
Holland	39	35	...	8	200	282	61
Belgium	55	102	7	17	110	291	48
Switzerland	19	32	...	5	60	116	39
Various	194	40	...	23	72	329	22
Europe	2,845	3,030	132	603	2,317	8,927	27
United States	776	1,443	107	231	320	2,877	46
Canada	56	64	3	12	40	175	36
Australia	62	41	8	10	120	241	66
Argentina	42	40	...	8	30	120	32
Total	3,781	4,618	250	864	2,827	12,340	30

The value of the above industries in the above countries at various dates was approximately as follows in millions £ sterling :—

Year	Agriculture	Manufactures	Mining	Transport	Commerce	Total
1820	1,405	865	19	229	287	2,805
1840	1,750	1,314	35	310	485	3,894
1860	2,380	2,404	108	490	1,305	6,687
1888	3,781	4,618	250	864	2,827	12,340

The relative increase of the principal industries is shown approximately as follows :—

	1820	1840	1860	1888
Agriculture	100	124	170	270
Manufactures	100	153	280	536
Mining	100	183	567	1,320
Transport	100	135	213	376
Commerce	100	166	450	990
Total	100	152	336	440

* The values here given represent the gross amounts without any deduction. For net values see *Income*, p. 320.

The ratios of the various industries in forming the aggregate were as follows :—

	1820	1840	1860	1888
Agriculture	50.1	44.8	35.6	30.5
Manufactures . . .	30.8	33.8	36.0	37.6
Mining	0.7	0.9	1.6	2.1
Transport	8.2	8.0	7.3	7.0
Commerce	10.2	12.5	19.5	22.8
Total . .	100.0	100.0	100.0	100.0

If we take the first four items as the direct fruits of human industry in the aggregate, and compare with population, we find as follows :—

Year	Population	Industries, Millions £	£ per Head
1820 . . .	208,000,000	2,518	12.1
1840 . . .	256,000,000	3,409	13.3
1860 . . .	313,000,000	5,382	17.2
1888 . . .	416,000,000	9,513	22.8

The population and industries are those of Europe, United States, Canada, Australia, and Argentina. It appears that, owing to improved machinery, the product of a man's labour represents at present double the value that it did in 1820. But as prices have fallen in the interval about 33 per cent., it follows that the average in 1888 was equal to £34 per head measured by prices of 1820. Thus one man now, in whatever industry, produces as much as 3 did in 1820, or 2½ in 1840, or 2 in 1860.

INFIRM

The principal classes of infirm of body are blind and deaf-mutes, whose numbers by latest returns were as follows :—

	Blind	Deaf-Mutes	Total	Per Million Population
England	22,800	13,300	36,100	1,390
Scotland	3,200	2,200	5,400	1,455
Ireland	6,100	4,000	10,100	1,940
United Kingdom .	32,100	19,500	51,600	1,475
France	32,060	21,100	53,160	1,390
Germany	39,000	45,000	84,000	1,830
Russia	178,500	53,500	232,000	2,730
Austria proper . .	15,800	26,800	42,600	1,940
Hungary	20,600	15,000	35,600	2,350
Italy	28,200	19,800	48,000	1,610
Spain	20,300	10,700	31,000	1,700
Scandinavia . . .	7,900	7,800	15,700	1,840
Belgium and Holland . }	6,700	4,200	10,900	1,050
Switzerland . . .	2,100	6,800	8,900	3,200
Europe	383,260	230,200	613,460	1,840
United States . .	48,900	33,900	82,800	1,650
Total . .	432,160	264,100	696,260	1,760

In 1881 Professor Haltkenhoff of Geneva said that there were 311,000 blind persons in Europe, mostly the result of fevers, and that 75 per cent. of them could have kept their sight if they had been properly treated.
The proportion of sexes shows thus :—

Females Blind to 100 Males

France . . 76	Prussia . . 88	Sweden . . 118
Belgium . . 89	Norway . . 108	United States 82

The following table is by Principal Campbell :—

	Blind per Million Persons of Each Sex				
	Male	Female		Male	Female
England .	953	809	Austria . .	1,280	1,183
Scotland .	865	827	Italy. . .	1,106	925
Ireland . .	1,141	1,219	Spain . .	1,242	1,011
France .	948	726	Norway .	1,313	1,411
Germany .	884	881	Holland .	499	394
Sweden .	767	843	Belgium .	982	641
Denmark .	776	793	Finland .	1,514	2,938

The number of blind institutions and of pupils were :—

	Institutions	Inmates
United Kingdom . . .	80	2,830
France	23	1,210
Germany	35	1,810
Austria	11	680
Italy	22	670
Spain	12	650
Russia	15	400
Scandinavia	10	330
Belgium and Holland . .	14	500
United States	36	2,500
Canada	3	200
Total . .	261	11,780

The number of deaf-mutes in most countries increases faster than population, as the following table shows :—

	Number		Per Million Inhab.	
	1831	1871	1831	1871
United Kingdom .	14,328	19,237	597	611
France . . .	20,189	21,130	630	603
Germany . .	20,470	30,900	724	770
Russia . . .	27,834	. . .	631	. . .
Austria . . .	21,684	34,450	802	980
Italy . . .	12,618	19,800	628	702
Spain . . .	7,255	10,700	633	655
Switzerland . .	3,567	6,820	1,996	2,620
Denmark . .	1,260	. . .	1,114	. . .
Sweden and Norway	2,397	5,540	605	920
United States .	6,030	18,150	460	480

Sex ratio is in most countries 55 male deaf-mutes to 45 females, but in Italy 58 to 42.
Colour-blindness, which usually takes the form of inability to distinguish red from green, is found to prevail thus :—

	Per 1000 Persons		
	Male	Female	General Population
England . . .	47	40	44
Scotland . . .	30	. . .	. . .
France	70	. . .	. . .
Sweden . . .	32	26	29
Switzerland . . .	47	9	28
United States . .	40	10	26
Boston . . .	40	17	30
Holland	. . .	. . .	58
Belgium	. . .	. . .	26
Russia	. . .	. . .	80
London	34	. . .	. . .

Of French marines 82 per 1000, of British sailors 45.

UNITED KINGDOM

The number and ratios of blind were as follows :—

Year	Number of Blind			U. Kingdom
	England	Scotland	Ireland	
1851 . . .	18,306	3,010	7,587	28,903
1861 . . .	19,352	2,820	6,879	29,051
1871 . . .	21,590	3,019	6,347	30,956
1881 . . .	22,832	3,158	6,111	32,101

Year	Number of Population to one Blind Person			
	England	Scotland	Ireland	U. Kingdom
1851 . . .	979	1,065	864	948
1861 . . .	1,037	1,090	843	1,002
1871 . . .	1,052	1,112	852	1,022
1881 . . .	1,138	1,182	847	1,094

The number of blind in England per million persons of each age was in 1881 as follows :—

Years	Per Million
0–5	166
5–15	288
15–20	388
20–25	422
25–45	641
45–65	1,625
Over 65	6,915
General average	877

The number of deaf-mutes in the United Kingdom rose from 14,328 in 1831 to 19,237 in 1871. The number per million inhabitants was as follows :—

	1831	1861	1871
England	545	581	504
Scotland	552	753	633
Ireland	664	975	1,028
United Kingdom . .	597	701	611

The number of short-sighted people is not known, but Ware found at Oxford, in 1813, that 26 per cent. of those in the University used glasses.

FRANCE

The returns for 1866 showed as follows :—

Cause	Blind	Deaf-Mutes	Total
From birth . . .	4,726	15,296	20,022
Accident or illness .	27,242	5,918	33,160
Total . .	31,968	21,214	53,182

The ratios of blind and deaf-mutes per million persons of each sex were :—

	Blind		Deaf-Mutes		Total	
	Male	Female	Male	Female	Male	Female
Under 15 .	270	210	470	380	740	590
Unmarried adults }	1,100	1,150	1,480	1,250	2,580	2,400
Married . .	900	520	185	120	1,085	640
Widowed .	3,810	2,180	386	223	4,196	2,403

The number of persons born blind was 65 in a million of male population, 35 in a million of the female.

In 1876 the number of afflicted persons was :—

	Blind	Deaf-Mutes	Total
Males . . .	15,526	11,460	26,986
Females . . .	12,965	9,935	22,900
Total . .	28,491	21,395	49,886

In 1883 there were 32,056 blind, of whom 2548 were under 21 years of age.

GERMANY

In 1843 the kingdom of Prussia showed as follows :—

	Male	Female	Total	Per Million Population
Blind . . .	5,222	4,930	10,152	680
Deaf-mutes .	6,460	5,037	11,497	770
Total .	11,682	9,967	21,649	1,450

In 1880 the German Empire had 37,800 blind, of whom 1810 were receiving instruction in Blind schools. In 1888 there were 28 Blind institutions, with 2139 pupils, the total number of blind in the Empire being estimated at 39,000. The numbers of deaf-mutes in Prussia in 1871 and 1880 were :—

	Number		Per Million Population	
	1871	1880	1871	1880
Males	13,118	15,168	1,080	1,130
Females . . .	11,197	12,026	900	910
Total . .	24,315	27,194	990	1,020

The rate was 990 per million among Protestants, 1040 among Catholics, and 1440 among Jews. There are in Prussia 96 schools for deaf-mutes, with 331 teachers and 3991 pupils.

RUSSIA

The total number of blind is estimated at about 180,000, the rate per million inhabitants varying in the different provinces for which there are returns, viz. :—

Kieff	.	.	1,960	Livonia . . .	5,020
Pultowa	.	.	1,780	Esthonia . . .	4,110
Kazan	.	.	5,700	Finland . . .	2,140

In the city of St. Petersburg the rate is only 890 per million, the total number of blind being 771, namely, 320 males and 451 females ; only 17 per cent. of the whole number were born blind. There are 21 Blind asylums in the Empire.

FINLAND

The ratio of blind in 1875 was : 214 per 100,000 males, 438 for females, and 328 for the general population ; this is nearly 2½ times as much as in Norway, four times as much as in France. Smoky huts are one of the causes. Finland has 233 deaf-mutes per million.

ALGERIA

There are 6666 blind persons, of whom 5330 are adult. The above number compared with population shows 1750 per million, which is 50 per cent. over the European average.

AUSTRIA

Official returns for 1886 showed as follows for Austria, without Hungary :—

	Males	Females	Total	Per Million Population
Blind . . .	8,480	7,282	15,762	710
Deaf-mutes .	15,041	11,752	26,793	1,220
Total .	23,521	19,034	42,555	1,930

The institutions contained the following :—

	Males	Females	Total
Blind	403	281	684
Deaf-mutes . .	807	621	1,428
Total . .	1,210	902	2,112

	Born so	Became so	Total
Blind	101	583	684
Deaf-mutes . .	469	959	1,428
Total . .	570	1,542	2,112

In 1884 there were 26,245 deaf-mutes, of whom 22,319, say 92 per cent., were born so.

HUNGARY

The number of blind was as follows :—

	Number		Per Million Population	
	1870	1880	1870	1880
Males	9,800	10,242	127	128
Females . . .	8,723	10,597	113	132
Total . .	18,523	20,639	120	130

The number of deaf-mutes in 1880 was 15,000, or 960 per million population.

ITALY

The ratios of blind and of deaf-mutes in 1872 showed :—

	Per Million Inhabitants		
	Blind	Deaf-Mutes	Total
Sicily . . .	1,282	687	1,969
Central Italy . .	1,000	744	1,744
Lombardy . .	795	1,153	1,948
Sardinia, &c. . .	1,929	719	2,648
Italy	1,050	738	1,788

The distribution according to sexes was as follows :—

	Males	Females	Total
Blind . . .	15,946	12,181	28,127
Deaf-mutes . .	11,615	8,164	19,779
Total . .	27,561	20,345	47,906

The Census of 1881 showed 21,718 blind and 15,300 deaf-mutes, but the authorities believe the real numbers to be much greater.

BELGIUM AND HOLLAND

In Belgium the asylums for the blind and for deaf-mutes contained in 1885 :—

Males .	.	.	.	.	.	729
Females	.	.	.	.	.	540
			Total	.	.	1,269

The ratio of blind in Belgium was 874 per million inhabitants in 1860, and has now declined to 810. Deaf-mutes were 450 per million in 1835, and have declined to 404. As regards Holland, there are no returns since 1869, when there were 1593 blind, or 450 per million of population.

NORWAY

The ratios of blind and of deaf-mutes at various dates were :—

Year	Blind per 100,000 Inhab.			Deaf-Mutes per 100,000 Inhabitants	Total
	Town	Rural	Norway		
1835 . .	123	183	177	91	268
1845 . .	127	218	209	83	292
1855 . .	119	195	186	83	269
1865 . .	90	145	136	92	228
1875 . .	79	148	136	86	222

The actual numbers of deaf-mutes were as follows :—

Year	Males	Females	Total	Per 100,000 Population
1835	598	493	1,091	91
1855	650	592	1,242	83
1875	819	752	1,571	86

SWEDEN AND DENMARK

The numbers in these countries are :—

	Number		Per Million	
	Blind	Deaf-Mutes	Blind	Deaf-Mutes
Sweden . .	3,723	4,834	810	1,050
Denmark .	1,249	...	705	...

UNITED STATES

The classification in 1880 was as follows :—

	Males	Females	Total
Blind	26,748	22,180	48,928
Deaf-mutes . .	18,567	15,311	33,878
Total . .	45,315	37,491	82,806

	American	Foreign	Total
Blind	40,509	8,419	48,928
Deaf-mutes . .	30,507	3,371	33,878
Total . .	71,016	11,790	82,806

	White	Coloured	Total
Blind	41,278	7,650	48,928
Deaf-mutes . .	30,661	3,217	33,878
Total . .	71,939	10,867	82,806

The returns of deaf-mutes at various dates showed :—

Year	Number	Per Million Inhabitants	Ratio of Sex	
			Males	Females
1830 . . .	6,106	470	...	...
1840 . . .	7,706	453	...	...
1850 . . .	9,803	427	55	45
1860 . . .	12,820	413	55	45
1870 . . .	16,205	422	55	45
1880 . . .	33,880	678	56	44

Deaf-mutes and blind have risen in numbers much faster than population. The ratio per million inhabitants rises at each successive census, perhaps because the ratio of urban population is at each period higher.

The number and ratio of blind at various dates were :—

Year	Number	Per Million Population	Ratio of Sex	
			Males	Females
1830 . . .	5,444	420	...	...
1840 . . .	6,916	407	...	...
1850 . . .	9,790	426	55	45
1860 . . .	12,660	410	58	42
1870 . . .	20,320	530	56	44
1880 . . .	48,928	970	55	45

CANADA

The general ratios are not published. In 1886 Manitoba had per million inhabitants 147 blind and 735 deafmutes, being a very low ratio for blindness.

INQUESTS

In 1887 there were 30,030 held in England and Wales, viz. :—

Cause of Death.

Natural causes	11,231
Suicide	2,227
Drink	372
Murder	350
Hunger	250
Various causes	15,600
Total . . .	30,030

INSANE

The following table shows the number of insane, including idiots, in the various countries, about 1880–84 (except Italy, 1872) :—

	Number	Per 10,000 Inhab.	Ratio of Recovery	Annual Death-Rate	Asylums
			Per Cent.	Per Cent.	
England . . .	81,600	32	39	10	
Scotland . . .	11,600	32	42	8	81
Ireland . . .	19,500	37	48	8	
France . . .	93,900	25	33	15	110
Germany . . .	108,100	24	31	8	130
Russia . . .	80,000	11	...	...	74
Austria . . .	44,500	20	...	12	28
Italy . . .	44,100	17	...	...	33
Spain and Portugal .	13,000	7	...	...	11
Belgium and Holland .	10,400	12	32	14	68
Switzerland . .	3,100	11	...	...	42
Scandinavia . .	18,100	29	...	...	27
Europe . .	518,400	16	33	12	604
United States . .	168,900	33	47	10	...
Canada . . .	7,300	18	...	...	...
Australia . . .	4,900	17	45	7	...
Total .	695,500	19	36	11	...

As regards the causes of insanity, not including idiots, the average returns for England, France, Denmark, and United States combined give this result :—

	Per Cent.		Per Cent.
Hereditary . .	24	Loss of friends .	11
Drink . . .	24	Sickness. .	10
Business . .	12	Various . .	19

The ratios of sex in various countries show thus :—

	Inmates of Asylums		
	Males	Females	Total
England . . .	47	53	100
Scotland . . .	48	52	100
Ireland . . .	52	48	100
France . . .	48	52	100
Italy . . .	56	44	100
United States . .	51	49	100

Even in countries where the number of insane females exceeds that of males, it is found that men are more liable than women to insanity, but die faster. Thus in France there are annually admitted 110 males to 100 females, though the existing number of the latter is greater.

The percentage of insanity caused by drink is stated thus :—Italy 2, Austria 15, France 20, England 32, Sweden 50.

The relative numbers of insane persons cured is :—

	Per 100 of each Class		
	Males	Females	Total
France . . .	35	32	33
England . . .	36	42	39
Scotland . . .	40	44	42

Taking the existing numbers of mad people in the following countries, the sexes stood thus :—

		Males to Females
England and Wales . . .	100	118
France	100	110
Italy	100	73

UNITED KINGDOM

The returns for 1883 showed as follows :—

	England	Scotland	Ireland	United Kingdom
Pauper insane . .	65,400	8,000	12,200	85,600
Private insane . .	16,200	3,600	7,300	27,100
Total . .	81,600	11,600	19,500	112,700
Lunatics	39,600	6,800	9,800	56,200
Idiots	29,500	4,600	6,700	40,800
Unclassified . . .	12,500	200	3,000	15,700
Total . .	81,600	11,600	19,500	112,700

There has been a notable increase of insane paupers since 1861, viz. :—

Period	Paupers Insane per Million Inhab.	
	England and Wales	Scotland
1861–65 . . .	2,080	2,050
1871–75 . . .	2,581	2,290
1880 . . .	2,792	2,580

Insanity varies with locality, as shown thus :—

Pauper Insane per 100,000 Inhabitants

Shetland . .	96	Edinburgh .	172	Argyll . .	259
Orkney . .	107	Sheffield .	179	Manchester .	270
Bradford . .	121	Newcastle .	191	Birmingham .	301
Durham . .	129	Swansea .	202	Oxford . .	312
Cornwall . .	158	Liverpool .	219	Nottingham .	342
Leeds . . .	160	Perth . .	233	London . .	361

FRANCE

Year	Number	Per 100,000 Inhabitants	Caused by Drink, per Cent.
1851	46,400	129	8
1856	59,800	166	9
1866	90,100	238	14
1869	94,800	247	15
1879	93,970	252	15

The returns of lunatic asylums showed as follows :—

Year	Males	Females	Total
1871	18,020	19,700	37,720
1880	22,100	22,960	45,060
1886	24,990	27,880	52,870

The returns for 1885 were as follows :—

	Males	Females	Total
Old patients . . .	24,400	27,400	51,800
New patients . .	8,100	7,300	15,400
Total . .	32,500	34,700	67,200
Cured . . .	1,655	1,519	3,174
Died . . .	3,326	2,785	6,111

The death-rate was 10.2 for males, 8.2 for females, and 9.1 for all. The expenditure during the year was £780,000, of which the families defrayed only £56,000, the rest being borne by the State. The number of patients treated during the year was :—

Asylums	Males	Females	Total
Public	20,100	21,400	41,500
Private	12,400	13,300	25,700
Total . .	32,500	34,700	67,200

The death-rate was much lower in private than in public asylums, viz. :—

Asylums	Deaths			Per Cent.
	Males	Females	Total	
Public . .	2,263	1,802	4,065	9.7
Private . .	1,063	983	2,046	7.9
Total .	3,326	2,785	6,111	9.1

The statistics published by the Prefecture of Police in Paris indicate a very rapid increase in the number of insane persons admitted into the special infirmary of the capital, viz. :—

Year	Males	Females	Total
1872	1,695	1,389	3,084
1880	1,932	1,552	3,484
1888	2,549	1,900	4,449

The form of insanity known as *folie alcoölique* is twice as frequent now as it was fifteen years ago, and the number of persons placed under restraint on account of it has increased by 25 per cent. in the last three years. This is ascribed to the increased consumption of alcohol.

The returns for 1866 were as follows :—

	Insane	Idiots	Total
In asylums . .	31,992	3,980	35,972
In families . . .	18,734	35,973	54,707
Total . .	50,726	39,953	90,679

Of lunatics there were 91 males to 100 females, and of idiots 132 males to 100 females : taken collectively, the proportion was 107 males to 100 females. According to Lunier (1856) the number of persons who go mad yearly in a million of each class is as follows :—

Peasants . . . 52	Learned professions .	525
Tradesmen . . . 180	Soldiers . . .	590
Capitalists . . . 275	Officers . . .	1,300

GERMANY

The returns for Prussia showed as follows :—

Year	Males	Females	Total	Per 100,000 Inhabitants
1871 . .	28,002	27,041	55,043	221
1880 . .	34,309	32,036	66,345	243

Mayr's tables for Bavaria showed a stronger tendency to insanity among Jews than Christians, viz., 620 Protestants, 840 Catholics, and 1190 Jews per million. He also found that 30 per cent. of lunatics had hereditary taint, and that in 1877 there were 34 insane for every 1000 lawsuits.

RUSSIA

In 1860 there were 41 asylums, containing 3100 insane. In 1882 the number of asylums had risen to 74 ; that of inmates was not stated. It was roughly supposed that the total number of insane and idiots in asylums and their own houses might reach 80,000, but nothing is really known. In Finland the ratio of insane persons is 170 per 100,000 inhabitants.

AUSTRIA

The returns do not include Hungary, and show thus for 1886 :—

	Males	Females	Total
In asylums . .	4,394	3,715	8,109
In families . . .	10,991	8,958	19,949
Lunatics . . .	15,385	12,673	28,058
Idiots	9,507	6,913	16,420
Total . .	24,892	19,586	44,478

The average cost was 16d. daily, or £24 a year, for each inmate of asylums.

BELGIUM

The number of insane at various dates was as follows :—

	1858	1868	1878	1888
Males . .	3,481	4,287	5,288	5,200
Females . .	2,994	3,953	4,732	5,080
Total .	6,475	8,240	10,020	10,280

The returns for 1888 comprise only those in asylums; the statistics for previous dates showed thus :—

In	1858	1868	1878
Asylums . . .	4,420	6,032	7,886
Families . . .	2,055	2,208	2,134
Total . .	**6,475**	**8,240**	**10,020**
Age			
Under 30 . . .	1,313	1,660	1,903
30–50	2,658	3,382	4,186
Over 50 . . .	2,504	3,198	3,931
Total . .	**6,475**	**8,240**	**10,020**
Married men . .	499	639	821
Married women .	468	685	813
Unmarried men .	2,809	3,453	4,244
Unmarried women .	2,184	2,806	3,394
Widowers . . .	173	195	223
Widows . . .	342	462	525
Total . .	**6,475**	**8,240**	**10,020**
Deaths	503	557	882
Per cent. . . .	7.7	6.7	8.8
Cured	520	626	617

Of 100 persons who become insane, 16 will be under 20 years of age, 24 between 20 and 30 years, 22 in the ensuing decade, 16 between 40 and 50, and 22 over 50 years.

ITALY

Between 1872 and 1877 the number of pauper lunatics increased 24 per cent., namely, from 12,210 to 15,173, but the total number of insane in the latter year was unknown.
The returns for 1872 showed thus :—

	Males	Females	Total
In asylums . .	6,476	5,734	12,210
In families . . .	19,140	12,752	31,892
Total . .	**25,616**	**18,486**	**44,102**

Insane per 100,000 Inhabitants

Naples . . 111	Tuscany . . 185	Lombardy . 230
Rome . . 157	Piedmont . . 222	Italy . . . 171
Venice . . 174	Liguria . . . 226	

The ratio of insanity according to condition, that is, married or unmarried, was as follows :—

    100 unmarried males to 52 married
    100   ,,   females to 58 married

The ratio of population is 100 unmarried to 60 married; it appears, therefore, that insanity is more prevalent among unmarried than married persons.
The returns for 1877 refer only to pauper lunatics, viz. :—

Males 8,010
Females 7,163
Total . . . 15,173

Pauper lunatics compared with population thus :—

Per 100,000 Inhabitants

Sardinia . . 18	Venice . . . 61	Lombardy . 76
Naples . . . 29	Piedmont . . 62	Rome . . . 85
Sicily . . . 23	Genoa . . . 68	

Insanity was most prevalent between forty and sixty years of age, the number per million of each class showing thus :—

Under 20 . . 93	41 to 60 . . 1,098
20–40 . . . 944	Over 60 . . 557

In 100,000 Christians there were 58 pauper lunatics; in 100,000 Jews there were 260. The prevalence of insanity among Jews has already been noted in Germany.

NORWAY

The ratios of idiots and insane persons showed thus :—

Year	Per 100,000 Inhabitants		
	Idiots	Insane	Total
1835 . . .	142	160	302
1845 . . .	153	168	321
1855 . . .	160	181	341
1865 . . .	120	185	305
1875 . . .	...	...	480

HOLLAND

The number of insane paupers per million inhabitants rose from 594 in 1856 to 754 in 1863.

UNITED STATES

Year	Luna-tics	Idiots	Total	Per 100,000 Inhabi-tants	Sex Ratio (Percentage of Males)		
					Luna-tics	Idiots	Total
1840	...	...	17,410	102	...	...	...
1850	15,610	15,790	31,400	136	51	60	55
1860	24,040	18,930	42,970	139	49	58	53
1870	37,430	24,530	61,960	161	47	60	53
1880	91,990	76,890	168,880	330	46	60	51

In 1880 the insane were classified thus :—

	Males	Females	Total
Idiots	45,309	31,586	76,895
Insane	44,388	47,571	91,959
Total . .	**89,697**	**79,157**	**168,854**

	White	Coloured	Total
Idiots	67,316	9,579	76,895
Insane	85,802	6,157	91,959
Total . .	**153,118**	**15,736**	**168,854**

	Americans	Foreigners	Total
Idiots	72,888	4,007	76,895
Insane	65,630	26,329	91,959
Total . .	**138,518**	**30,331**	**168,854**

AUSTRALIA

In December 1887 the seven colonies counted 10,130 insane persons, being 286 per 100,000 inhabitants. The ratios were :—

	Per 100,000		Per 100,000
New South Wales .	270	South Australia . . 240
Victoria . . .	329	Tasmania . . . 243
New Zealand . .	281	Western Australia . 285
Queensland . .	244	General average . . 286

INSECTS

On an average, 15 tons of vegetable mould are annually thrown up by earth-worms on an acre of cultivable land, equal to a weight of 705 million tons in the United Kingdom. There are about 26,800 worms to each acre.

According to the *Edinburgh Review* (336), the annual value of agricultural products consumed by insects in the United States is 60 millions sterling. The value of 2,900,000 acres of vineyard devastated by phylloxera in France was 132 millions sterling.

Locusts inflict enormous damage in many countries. In Cyprus the peasants are paid £40 for every ton of locust eggs which they destroy, some years destroying 60 tons, which is equivalent to 680 million locusts. In Russia 600 soldiers can sweep a ton of locusts daily into ditches and destroy them.

INSURANCE

The *Bulletin Statistique* of 1886 has the following tables :—

	Amount of Life Insurances, Millions £ Sterling					
	1859	1864	1869	1874	1879	1883
Great Britain .	160	210	269	362	415	445
Continent . .	30	61	112	176	236	327
United States .	30	85	397	431	311	383
Total . .	220	356	778	969	962	1,155

	Average Amount of Insurance, £				
	Great Britain	France	Germany	Austria	United States
1859 . . .	580	420	168	152	616
1869 . . .	420	400	136	136	604
1879 . . .	460	440	172	112	520
1883 . . .	464	448	184	128	544

Besso considers that 8,500,000 persons in Europe have their lives insured, say 2½ per cent. of the population. The latest returns show as follows :—

Year	Country	Amount, £	Premiums, £
1889 . . .	U. Kingdom	545,000,000	17,400,000
1888 . . .	Germany .	170,300,000	14,680,000
1885 . . .	Austria . .	45,200,000	7,800,000
1885 . . .	Russia . .	10,000,000	
1886 . . .	France . .	117,600,000	6,050,000
1885 . . .	Scandinavia	11,200,000	...
1885 . . .	Switzerland	8,100,000	...
1885 . . .	U. States .	420,000,000	21,900,000
1880 . . .	Canada . .	17,000,000	...

The above does not include the Industrial Life Assurances of Great Britain, of which later on.

According to the *Archivio*, the aggregate insurance business of Germany, Austria and Switzerland multiplied 15-fold in the period of 25 years down to 1877, viz. :—

Year	Existing Policies	Amount, £
1852 . . .	46,980	8,600,000
1865 . . .	280,500	41,600,000
1877 . . .	753,400	116,900,000

The following table shows how the aggregate for 1877 was made up, and also the new business for that year :—

	New Business, 1877		Total on Books, 1877	
	Policies	Amount, £	Policies	Amount, £
Germany .	78,030	15,100,000	552,200	92,400,000
Austria . .	21,800	2,900,000	178,900	19,300,000
Switzerland	2,300	550,000	22,200	5,100,000
Total .	102,130	18,550,000	753,300	116,800,000

In 1880 the new business done in various countries was :—

	New Policies	Amount, £	Policies Paid, £
Great Britain . .	44,900	20,900,000	11,200,000
United States . .	123,000	37,500,000	...
Germany . . .	47,600	13,800,000	1,900,000
France	47,800	17,700,000	1,200,000

The life insurance of the principal countries in 1880 compared with the returns for 1870 as follows :—

	Existing Policies		Amount	
	1870	1880	1870	1880
			£	£
Great Britain	688,000	879,000	338,000,000	422,000,000
U. States .	748,000	725,000	405,000,000	312,000,000
Germany .	456,000	797,000	64,000,000	127,000,000
France . .	129,000	208,000	51,000,000	87,000,000
Austria . .	90,000	170,000	...	20,000,000
Canada . .	40,000	48,000	14,000,000	17,000,000

Besides the ordinary system in England of companies charging an annual premium for a policy payable only on death, there is another mode of insurance, whereby the insured person on reaching a certain age receives an annuity for life. In Denmark any person who pays in at the age of 21 a sum of £6 10s. will be entitled to an annuity of £13 on reaching the age of 65 ; if he die meantime, the sum is forfeit. In Germany, whoever pays 20d. a week during three years, beginning at the age of 18, will receive an annuity of £13 on arriving at that of 65. The German system of compulsory insurance divides the annual premium into three equal parts, one paid by the workman, one by his employer, one by the State. In England, by payment of £100 to any of the first-class insurance companies the following annuity may be secured, varying with the age of the person who buys the annuity :—

Age	Annuity for £100			
	Man		Woman	
	£ s. d.		£ s. d.	
50	7 7 0		6 13 0	
60	9 0 0		8 0 0	

UNITED KINGDOM

There are 95 principal companies, which showed the following aggregate of business for life insurance :—

	1877	1886	1889
Policies	779,000	902,000	...
Amount, £ . .	384,000,000	421,000,000	545,000,000
Premiums, £ . .	11,700,000	12,800,000	13,930,000
Assets, £ . . .	124,000,000	143,000,000	165,700,000

There are also industrial life insurances of the working classes, which showed thus :—

	1880	1885
Number of policies .	5,440,000	9,132,000
Amount, £ .	49,000,000	83,000,000
Annual premiums, £ .	1,940,000	3,550,000

The average annual premium in British companies, per £100 of policy, varies with age thus :—

Age	£ s. d.	Age	£ s. d.
25 . . .	2 2 0	40 . . .	3 4 0
30 . . .	2 8 0	45 . . .	3 15 0
35 . . .	2 15 0	55 . . .	5 11 0

The business of 95 companies in 1889 compared with 1884 thus :—

	1884	1889
	£	£
Premiums	12,300,000	13,930,000
Other receipts . . .	6,600,000	7,710,000
Total income .	18,900,000	21,640,000
Paid claims . . .	10,600,000	11,000,000
Expenses	5,600,000	5,640,000
Total payments .	16,200,000	16,640,000

The assets amount to 166 millions sterling, and include £11,300,000 paid-up capital.

FRANCE

In 1886 there were life policies running to the amount of £117,600,000, the premiums reaching £6,050,000 per annum; assets or reserve fund £35,800,000. The number and amount of policies for life insurance issued in twenty years down to 1880 were :—

Period	Number	Amount, £	Average, £
1861–70 . .	128,700 .	51,000,000	396
1871–80 . .	250,400	104,500,000	418
	379,100	155,500,000	410

There were 26,600 new policies issued during the year 1885. The foregoing are payable at the death of the insured person. As regards the purchase of annuities, the annuity fund in 1881 amounted to 16 millions sterling, and the new annuities purchased yearly average a capital value of £900,000. The annuities now running average as follows :—

	Per Annum £		Per Annum £
Military officers . .	95	Physicians . . .	56
Naval officers . . .	90	Farmers . . .	40
Men of property . .	62	Workmen . . .	36
Civil service . . .	60	Servants . . .	26

There is, moreover, a special life insurance against accidental deaths, which showed in 1886 premiums received £440,000, payments for persons killed £240,000.

GERMANY

Year	Policies	Amount, £	Policies Paid, £
1850 . . .	40,900	7,400,000	150,000
1860 . . .	129,600	21,200,000	350,000
1870 . . .	456,200	64,000,000	1,020,000
1880 . . .	797,100	127,300,000	1,870,000
1888 . . .	816,300	170,300,000	...

The above table shows the total number of existing policies and the aggregate amounts at the various dates. The increase of business in ten years appears on comparing the figures for 1888 with those of 1878 :—

	1878 £	1888 £
Amount of policies .	97,700,000	170,300,000
Amount of assets . .	28,000,000	52,300,000

AUSTRIA

The returns of 1885 compare with those of previous years thus :—

Year	Amount of Policies, £	Amount of Premiums, £
1876 . . .	25,500,000	3,000,000
1880 . . .	31,200,000	6,500,000
1885 . . .	45,200,000	7,800,000

UNITED STATES

According to Bradstreet's, the income of American life companies rose from £1,300,000 in 1861 to £21,900,000 in 1885. The assets in 1880 amounted to 84 millions sterling. A statement in 1860 showed 47 life companies, 60,000 persons insured, aggregate amount 37 millions sterling.

Fire Insurance

In 1887 a statement was published in London that the insurance companies of the United Kingdom covered properties to the amount of 5500 millions sterling, the annual premiums on the policies amounting to £14,500,000. The *Journal des Economists* published in 1883 a table of fire insurance for other countries. The result is as follows :—

Country	Property Insured, Millions £	Annual Premium, £	Rate per 1000	Annual Loss by Fire, £	Loss per Inhabitant, Pence
U. Kingdom	5,500	14,500,000	2.5	9,100,000	60
France . .	4,056	3,760,000	1.0	3,200,000	20
Germany .	3,170	6,500,000	2.0	6,100,000	32
Russia . .	180	900,000	5.0	9,000,000	26
Belgium . .	400	400,000	1.0	500,000	22
Scandinavia	115	300,000	2.7	1,000,000	38
U. States .	2,180	19,600,000	9.0	21,400,000	78
Canada . .	140	1,550,000	11.0	4,100,000	220
Total .	15,741	47,510,000	3.0	54,400,000	...

The figures for the United States are taken from the *Journal of Commerce*, 1887.

UNITED KINGDOM

Official returns were published down to 1868, when the insurance duty was abolished; they showed thus :—

Year	Amount, Millions £				Per Inhabitant, £
	England	Scotland	Ireland	United Kingdom	
1801	220	4	9	233	15
1810	325	12	17	354	20
1830	482	34	19	535	22
1850	680	43	34	757	28
1868	921	99	52	1,072	36

The assets of fire companies in 1881 amounted to 24 millions sterling.

FRANCE

The following table shows fire insurance :—

Year	Amount Insured		Premium, £	Losses Paid, £
	Millions £	£ per Inhabitant		
1851 . . .	1,318	41	1,140,000	560,000
1856 . . .	1,810	54	1,566,000	774,000
1868 . . .	3,092	88	2,440,000	1,460,000
1875 . . .	3,190	90	3,030,000	2,390,000
1881 . . .	4,056	112	3,855,000	2,430,000

The balance-sheet for 1886 showed as follows :—

Receipts, £		Payments, £	
Fire premiums .	3,650,000	Fire losses . . .	2,040,000
Investments . .	270,000	Expenses . . .	1,360,000
Total . .	3,920,000	Total . .	3,400,000

This left a profit of £520,000, say about 6 per cent. on a capital of £8,500,000 sterling. The following is an official record of all payments by insurance companies for losses by fire or other calamity :—

	1871	1885
	£	£
Fire	1,560,000	2,280,000
Hail	1,920,000	5,100,000
Frost	4,500,000	1,400,000
Cattle-plague . . .	1,800,000	1,500,000
Phylloxera . . .	...	6,640,000
Sundries	220,000	880,000
Total . .	10,000,000	17,800,000

The total payments in 1881 were £16,000,000, including £5,700,000 for phylloxera.

GERMANY

The returns of fire insurance show as follows :—

Year	Amount Insured		Premium, £	Losses Paid, £
	Millions £	£ per Inhabitant		
1850 . . .	815	27	1,650,000	1,200,000
1860 . . .	1 450	40	3,000,000	2,000,000
1870 . . .	2,030	50	4,160,000	2,900,000
1880 . . .	3,125	67	6,370,000	4,400,000

RUSSIA

Official estimates for 1884–85 show an average loss of property yearly amounting to £9,100,000 sterling, of which £3,300,000 covered by insurance. The loss compared with population is estimated at 4s. per head in towns, and 2s. in the rural population yearly.

AUSTRIA

Policies paid on losses caused on farms in 1886 amounted in Austria to £2,900,000, of which £1,800,000 by fire, the rest by hail. Losses paid on farms in Hungary for fire were £1,100,000, being 20 per cent. over the average of six preceding years.

UNITED STATES

The *Journal of Commerce* (New York) gives the following :—

Year	Insurances in Force, £	Loss by Fire, £
1875	1,260,000,000	16,200,000
1880	1,494,000,000	15,600,000
1885	2,180,000,000	21,400,000

The above table shows the total loss by fire, insured and uninsured. The latter shows the amounts paid by the companies for losses :—

Year	Amount Insured, £	Premium, £	Losses Paid, £
1856	175,000,000	1,440,000	880,000
1862	365,000,000	3,100,000	1,900,000
1876	1,310,000,000	11,800,000	8,800,000
1881	1,290,000,000	11,630,000	8,950,000

Marine Insurance

In 1880 the amount of marine insurance was estimated at 887 millions sterling, viz. :—

	Millions £
Lloyds	480
Hamburg	105
French, &c.	302

In 1888 the aggregate returns of seven Liverpool companies showed an average premium on all insurances during three years of only 7 per 1000, viz.: Average annual insurances, 137 millions sterling ; premium, £950,000 ; damages settled, £400,000 ; expenses of management, £100,000 ; annual dividend, 14 per cent. on a paid-up capital of £840,000. The losses, therefore, of ships and cargoes were only 3 per 1000 of value.

The Hamburg Company showed as follows :—

Year	Insured, £	Rate per 1000
1803	400,000	...
1820	11,000,000	17
1840	20,000,000	15
1860	47,000,000	14
1878	105,000,000	12

The French marine insurance returns were :—

	1884	1886
	£	£
Policies issued . . .	200,100,000	175,100,000
Premiums . . .	740,000	710,000
Rate per £1000 . .	3.7	4.1
Losses paid . . .	530,000	460,000

The losses, therefore, averaged 53s. per £1000.

IRON

The production of pig iron, which amounted to 60,000 tons in the year 1500, advanced very slowly until the nineteenth century. The following table shows the quantities approximately :—

Date	Tons					
	Great Britain	France	Germany	United States	Various	Total
1500	6,000	12000	5,000	...	37,000	60,000
1700	12,000	22,000	10,000	...	60,000	104,000
1740	20,000	26,000	18,000	1,000	92,000	157,000
1790	68,000	40,000	30,000	30,000	110,000	278,000
1800	190,000	60,000	40,000	40,000	130,000	460,000
1810	250,000	85,000	46,000	55,000	180,000	616,000
1820	400,000	140,000	90,000	110,000	270,000	1,010,000
1830	680,000	220,000	120,000	180,000	385,000	1,585,000
1840	1,390,000	350,000	170,000	290,000	480,000	2,680,000
1850	2,250,000	570,000	402,000	560,000	640,000	4,422,000
1860	3,830,000	900,000	530,000	820,000	1,100,000	7,180,000
1870	5,960,000	1,180,000	1,390,000	1,670,000	1,710,000	11,910,000
1880	7,750,000	1,730,000	2,730,000	3,840,000	2,090,000	18,140,000
1885	7,420,000	1,630,000	3,690,000	4,050,000	2,310,000	19,100,000
1889	8,250,000	1,720,000	4,530,000	7,600,000	3,060,000	25,160,000

The figures from 1500 to 1740 are those given by Seaman.

PLATE VI.

IRON AND COAL.

Consumption of Iron, lbs. per inhabitant.

In the year 1830.

BELGIUM	SWEDEN	U. KINGDOM	U. STATES	FRANCE	EUROPE	GERMANY	AUSTRIA	SPAIN	RUSSIA	ITALY
63	60	53	35	17	14	10	9	8	6	3

In the year 1888.

U. KINGDOM	BELGIUM	U. STATES	GERMANY	SWEDEN	EUROPE	FRANCE	AUSTRIA	SPAIN	ITALY	RUSSIA
400	310	290	204	170	120	112	45	37	22	19
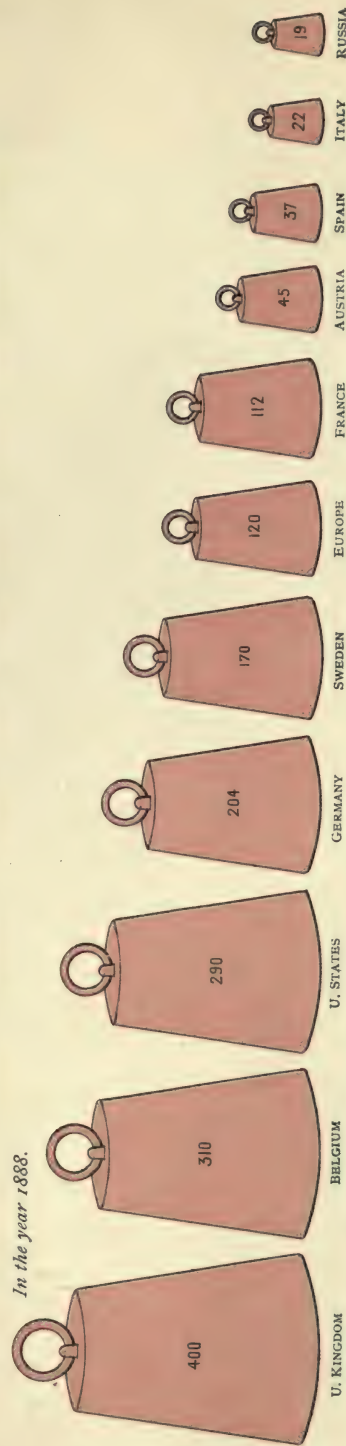
Consumption of Coal (1888), cwts, per inhabitant.

U. KINGDOM	BELGIUM	U. STATES	GERMANY	EUROPE	FRANCE	HOLLAND	AUSTRIA	SCANDINAVIA	SWITZERLAND	SPAIN	ITALY	RUSSIA
72	48	40	28	18	16	16	11	6	5	2	2	2

The production among minor countries since 1830 has been approximately thus :—

				Tons		
	1830	1850	1860	1870	1880	1889
Belgium . . .	35,000	73,000	220,000	520,000	490,000	850,000
Austria	80,000	140,000	310,000	400,000	470,000	760,000
Russia	120,000	220,000	290,000	350,000	450,000	600,000
Sweden	105,000	130,000	180,000	290,000	400,000	460,000
Spain	20,000	40,000	50,000	70,000	160,000	230,000
Various	25,000	37,000	50,000	80,000	120,000	160,000
Total . . .	385,000	640,000	1,100,000	1,710,000	2,090,000	3,060,000

The percentage of iron contained in ironstone is as follows :—

France . . .	31	United States	43	Canada . .	60
Germany . .	36	Australia . .	55	Russia . . .	44
England . .	41	Algeria . .	58	Sweden . .	52

The number of blast-furnaces was :—

	Total Number		Working in 1885	Average Product Tons Iron per Furnace
	1875	1885		
United Kingdom	959	891	429	17,400
United States .	713	591	276	14,700
France . . .	...	...	270	7,000
Germany . . .	456	...	252	17,500
Russia	...	...	206	2,400
Austria . . .	180	137	80	8,900
Sweden . . .	...	...	224	1,800
Belgium . . .	...	61	32	22,000

The furnaces of Great Britain in 1885 had a productive capacity of 16,900,000 tons, the actual production having been only 7,510,000 : it would appear that the furnaces of Europe and America could produce at least 40 million tons of iron yearly.

The production in 1885 was as follows :—

		Tons		
		Pig	Wrought	Steel
Great Britain . . .		7,510,000	1,940,000	1,920,000
United States . . .		4,040,000	1,640,000	1,600,000
Germany		3,700,000	1,460,000	1,140,000
France		1,600,000	770,000	530,000
Belgium		700,000	460,000	160,000
Austria		700,000	300,000	200,000
Russia		500,000	290,000	250,000
Sweden		400,000	50,000	40,000
Spain, &c.		290,000	190,000	310,000
Total . .		19,440,000	7,100,000	6,150,000

The following table shows approximately the consumption in the principal countries :—

		Tons			Lbs. per Inhabitant			
	1830	1850	1870	1888	1830	1850	1870	1888
United Kingdom . . .	560,000	1,970,000	4,260,000	6,700,000	53	170	310	400
France	250,000	600,000	1,350,000	1,900,000	17	37	80	112
Germany	120,000	420,000	1,340,000	4,340,000	10	27	74	204
Russia	120,000	300,000	655,000	730,000	6	11	20	17
Austria	100,000	160,000	430,000	770,000	9	12	28	45
Italy	20,000	50,000	100,000	290,000	3	6	9	22
Spain	40,000	80,000	150,000	300,000	8	13	23	37
Sweden	80,000	100,000	310,000	380,000	60	63	165	170
Belgium	95,000	170,000	550,000	830,000	63	90	242	310
Various	30,000	60,000	140,000	210,000	6	9	15	20
Europe	1,415,000	3,910,000	9,285,000	16,450,000	14	35	70	120
United States . . .	200,000	600,000	1,730,000	7,900,000	35	56	100	290
Colonies, &c. . . .	70,000	132,000	225,000	590,000	...	...	...	...
Total . .	1,685,000	4,642,000	11,240,000	24,940,000	...	...	...	...

The approximate value of goods manufactured from iron and steel in various countries is as follows :—

	Iron, £	Steel, £	Total £
United Kingdom	50,100,000	84,000,000	134,100,000
France	19,500,000	15,900,000	35,400,000
Germany . . .	40,500,000	37,800,000	78,300,000
Russia	5,400,000	7,000,000	12,400,000
Austria	6,200,000	7,600,000	13,800,000
Italy	3,500,000	600,000	4,100,000
Spain	2,800,000	900,000	3,700,000
Sweden	4,100,000	2,200,000	6,300,000
Belgium . . .	8,100,000	6,200,000	14,300,000
Europe	140,200,000	162,200,000	302,400,000
United States .	72,000,000	94,500,000	166,500,000
Total . .	212,200,000	256,700,000	368,900,000

The cost of producing a ton of iron or of steel in various countries was stated in 1883 in a report drawn up by the French Government as follows :—

	Shillings per Ton		
	Pig	Wrought Iron	Steel
England . . .	50	122	160
France	73	182	224
Germany . . .	59	144	192
Belgium . . .	47	130	131

A bar of iron, value 20s., may be manufactured into goods representing any of the following values :—

	£		£
Needles . . .	11	Buttons . . .	6,100
Penknives . . .	650	Watch-springs .	51,000

The production of pig iron in ninety years from 1800 has been approximately as follows :—

Period					Tons				
					United Kingdom	United States	Germany	Other Countries	Total
1800–20	.	.	.	.	5,700,000	1,400,000	1,300,000	4,800,000	13,200,000
1821–40	.	.	.	.	16,400,000	3,800,000	2,500,000	10,100,000	32,800,000
1841–50	.	.	.	.	18,200,000	4,200,000	2,600,000	8,500,000	33,500,000
1851–60	.	.	.	.	32,500,000	6,600,000	4,400,000	13,600,000	57,100,000
1861–70	.	.	.	.	47,400,000	11,400,000	10,300,000	24,500,000	93,600,000
1871–80	.	.	.	.	65,600,000	24,200,000	20,600,000	31,700,000	142,100,000
1881–89	.	.	.	.	71,200,000	47,900,000	33,300,000	38,700,000	191,100,000
90 years	.	.	.	.	257,000,000	99,500,000	75,000,000	131,900,000	563,400,000

Period					Value, £ Sterling				
1800–20	.	.	.	.	40,100,000	12,600,000	10,400,000	38,400,000	101,500,000
1821–40	.	.	.	.	90,200,000	30,400,000	17,500,000	70,700,000	208,800,000
1841–50	.	.	.	.	72,800,000	23,100,000	13,000,000	42,500,000	151,400,000
1851–60	.	.	.	.	89,400,000	26,400,000	17,600,000	54,400,000	187,800,000
1861–70	.	.	.	.	128,000,000	51,300,000	36,400,000	88,200,000	303,900,000
1871–80	.	.	.	.	166,800,000	109,000,000	58,500,000	90,300,000	424,600,000
1881–89	.	.	.	.	148,000,000	196,500,000	73,200,000	92,000,000	509,700,000
90 years	.	.	.	.	735,300,000	449,300,000	226,600,000	476,500,000	1,887,700,000

	Tons	Value, £
Great Britain . . .	257,000,000	735,300,000
United States . . .	99,500,000	449,300,000
Germany . . .	75,000,000	226,600,000
France . . .	49,700,000	189,400,000
Belgium . . .	22,200,000	77,500,000
Russia . . .	18,600,000	65,300,000
Austria . . .	17,200,000	58,600,000
Sweden . . .	15,100,000	52,300,000
Spain, Italy, &c. . .	9,100,000	33,400,000
Total . .	563,400,000	1,887,700,000

	Tons		
	1870	1880	1889
Great Britain .	215,000	1,440,000	3,670,000
France . .	84,000	385,000	530,000
Germany . .	126,000	660,000	1,860,000
Russia . .	5,000	295,000	250,000
Austria . .	22,000	100,000	300,000
Belgium . .	6,000	95,000	185,000
Sweden . .	12,000	30,000	70,000
United States .	70,000	1,250,000	3,385,000
Total .	540,000	4,255,000	10,250,000

Visiting cards are now sometimes made of very thin sheet-iron, viz. :—

	Per Inch Thick		Per Inch Thick
Belgian . .	. 400	Baron Krupp's .	820
Count Harrach's	. 640	Count Renard's .	1,000

The production of steel has been approximately as follows, in tons :—

	1850	1870	1881	1889
U. Kingdom .	49,000	215,000	1,440,000	3,670,000
Continent . .	17,000	255,000	1,565,000	3,195,000
United States .	5,000	70,000	1,250,000	3,385,000
Total .	71,000	540,000	4,255,000	10,250,000

According to Mr. Chisholm's tables and others, the production of steel in all countries has been as follows since 1870 :—

Steel rails were first used for railways at Chalk Farm, near London, in 1862. They bore an annual traffic of 96,000,000 tons, and after three years were found worn ¼ inch. The consumption of steel for railways in 1882 was as follows :—

	Consumption, Tons per Annum		
	New Lines	Renewal	Total
United States .	1,200,000	900,000	2,100,000
Great Britain . .	60,000	160,000	220,000
Continent, &c. .	680,000	655,000	1,335,000
Total . .	1,940,000	1,715,000	3,655,006

In twenty years ending 1889 it appears that railways have absorbed 43,500,000 tons of steel, or almost half the total product. The life of an iron rail is sixteen, that of a steel one forty, years.

The aggregate production of steel in forty years may be set down approximately as follows :—

Period				Tons					
				Great Britain	United States	Germany	France	Various	Total
1850–69 .	.	.	.	2,600,000	700,000	1,300,000	800,000	700,000	6,100,000
1870–79 .	.	.	.	8,300,000	3,800,000	3,100,000	2,200,000	2,100,000	19,500,000
1880–89 .	.	.	.	25,100,000	21,700,000	12,200,000	3,800,000	6,100,000	68,900,000
40 years	.	.	.	36,000,000	26,200,000	16,600,000	6,800,000	8,900,000	94,500,000

Taking the strength of Swedish iron at 100, the tensile strength of steel compares thus :—

Swedish iron	. . 100	Cannon steel . .	173
Boiler steel .	. . 118	Spring steel . .	202

A bar of chrome steel, ½ inch square and 5 inches long, gives a strength of 141,000 lbs. per square inch, being 37 per cent. more than carbon steel. The nominal strength of steel is 30 tons per square inch, but Professor Siemens shows that it is really 36 tons. The tests used by the French Admiralty as minimum breaking load are as follows :—

Iron Plates		Lbs.	Steel Plates, Inch	Lbs.
Common	. . .	52	0.16 to 0.24	101
Better	. .	62	0.24 ,, 0.80	99
Best	. .	64	0.80 ,, 1.20	97

The plates supplied by Messrs. Cammell of Sheffield for seven French ironclads were subjected to 36,000 foot-tons of energy, viz. :—Shot, 760 lbs. ; charge, 150 lbs., fired from a 12-inch gun, with velocity 1425 feet per second ; range, 264 feet.

The plates in question were 11 feet long and 7 feet wide by 18 inches thick.

In 1879 some vessels were built of steel on the Clyde, it being found that a steel ship could carry 20 per cent. more than one of iron. In 1882 the *Oregon*, 7400 tons, was built of steel ; the construction in this metal being as follows :—

		Tons
1879 .	. . . . . .	18,000
1883 .	. . . . . .	143,000

About three tons of steel are consumed daily in making pens, of which Birmingham consumes 1½ tons. The output of steel pens yearly in 1882 was as follows :—

		Pens	Per Inhab.
United Kingdom .	.	810,000,000	23
France .	. .	420,000,000	11
United States	.	105,000,000	2

There are fourteen steel-pen factories at Birmingham, three in France, two in Germany, and one in the United States. A ton of steel produces 1,500,000 pens. The price when first made by Gillott, sixty years ago, was 12s. a dozen, 150 times the present price.

UNITED KINGDOM

The following is a summary of iron and steel exports in thirty-five years, from Mr. Chisholm's tables :—

Period	Tons to									Total
	U. States	France	Germany	Belgium	Italy	Russia	India	Australia	Canada	
1855–59	1,600,000	600,000	1,200,000	20,000	...	230,000	860,000	280,000	...	6,900,000
1860–69	3,300,000	1,400,000	2,400,000	310,000	220,000	1,020,000	2,010,000	800,000	170,000	18,100,000
1870–79	5,100,000	1,100,000	5,900,000	1,240,000	780,000	2,200,000	1,500,000	1,700,000	1,600,000	27,100,000
1880–89	8,600,000	1,200,000	5,300,000	800,000	1,600,000	1,520,000	3,900,000	3,700,000	2,400,000	38,300,000
35 years	18,600,000	4,300,000	14,800,000	2,370,000	2,600,000	4,970,000	8,270,000	6,480,000	4,170,000	90,400,000

In the above table Germany also includes Holland. The total includes many countries not above stated. The production of iron compares with the exports from the United Kingdom thus :—

Period	Tons Iron Made	Tons Exported	Home Use
1855–59 . .	18,500,000	6,900,000	11,600,000
1860–69 . .	46,000,000	18,100,000	27,900,000
1870–79 . .	64,000,000	27,100,000	36,900,000
1880–89 . .	74,200,000	38,300,000	35,900,000
35 years . .	202,700,000	90,400,000	112,300,000

The consumption of coal in making pig iron was as follows :—

Year	Tons		Tons of Coal to One Ton of Iron
	Iron	Coal	
1796 . . .	125,000	750,000	6.0
1806 . . .	243,000	1,220,000	5.0
1840 . . .	1,396,000	4,877,000	3.5
1870 . . .	5,230,000	16,220,000	3.1
1875 . . .	6,365,000	15,700,000	2.5
1881 . . .	8,326,000	18,300,000	2.2
1889 . . .	8,200,000	17,400,000	2.1

Neilson's invention in 1829 of the hot-blast, 600° Fahr., caused a saving of 33 per cent. in the quantity of coal required. Cowper's "Regenerator" of 1500° Fahr., in 1857, caused a further saving. Meantime the total con-

sumption of coal in British ironworks is about 35 million tons. The estimate in 1881 was as follows :—

	Tons Coal Used
Making pig-iron	18,300,000
Finished iron . . .	8,040,000
Steel	1,680,000
Engines and shipbuilding .	1,510,000
Sundries	5,230,000
Total . .	34,760,000

The furnaces of the United Kingdom in 1889 were :—

	In Blast	Idle	Total
England . . .	329	233	562
Wales	45	66	111
Scotland . . .	87	53	140
Total . .	461	352	813

FRANCE

In the eighteenth century, according to Seaman, France produced more iron than Great Britain until the French Revolution, when England took the foremost place. In that century France only doubled her output from 22,000 to 50,000 tons, while Great Britain increased hers tenfold. The wars of Bonaparte considerably retarded this industry, for we find that in 1814 the production did not exceed 100,000 tons, whereas in Great Britain it reached 300,000 tons. A table published in 1840 was as follows :—

Year	Blast Furnaces	Tons Pig Iron
1825	...	160,000
1828	393	220,000
1839	569	350,000

In this latter year the number of hands employed was 44,000, giving an average of eight tons per man. The production and consumption of iron and steel were approximately as follows :—

Year	Iron, Tons		Lbs. Con-sumed per Inhabitant	Production of Steel, Tons
	Production	Consumption		
1700 . . .	22,000	22,000	2	...
1800 . . .	60,000	60,000	5	...
1850 . . .	570,000	600,000	37	8,000
1870 . . .	1,180,000	1,350,000	80	94,000
1889 . . .	1,720,000	1,900,000	112	530,000

In 1880 there were 600 blast-furnaces and 500 others. In 1885 the foundries employed 55,000 workmen, who turned out 780,000 tons of iron bars, &c., and 550,000 tons of steel, representing a value of £10,200,000, say £184 per man.

GERMANY

The production of iron has increased an hundred-fold since 1810, viz. :—

Year	Tons Iron	Tons Steel	Lbs. Iron per Inhabitant
1810	46,000	...	4
1850	402,000	6,000	27
1870	1,390,000	170,000	74
1889	4,530,000	1,400,000	204

In 1888 there were 1470 foundries, employing 170,000 men. The most remarkable in the world is that of Mr. Krupp, at Essen, Prussia, covering 1100 acres: the number of workmen never falls below 16,000, and there are 800 steam-engines, with an aggregate of 18,000 horse-power, and 82 steam-hammers, the heaviest weighing 50 tons : the daily consumption of iron and steel averages 500 tons. Down to 1876 Mr. Krupp had delivered 15,000 pieces of cannon to various nations.

Germany is now the third great producer of iron, her output being half that of Great Britain. In seven years ending 1887 the imports and exports of pig-iron were equal, but the exports of railway bars and other manufactured iron averaged 340,000 tons yearly.

RUSSIA

In 1828 there were 900 furnaces at work at Perm, Vialka, and Nijni, and 600 workshops for cutlery at Tula, with 7000 operatives : the production of iron was then estimated at 115,000 tons, but it was so dear that horses were unshod and farm implements were entirely of wood. In 1866 Tegebolski's report showed 1732 foundries, with 137,000 operatives, who consumed 300,000 tons of iron yearly, turning out manufactures valued at 10 millions sterling ; an excessive valuation, equal to £28 a ton, the real value being about 7 millions. The following table shows approximately the production and consumption :—

Year	Tons Iron		Lbs. per Inhabitant	Steel, Tons
	Production	Consumption		
1828 . .	115,000	120,000	6	...
1850 . .	220,000	300,000	11	...
1870 . .	350,000	655,000	20	9,000
1888 . .	600,000	730,000	19	260,000

There has been a remarkable increase in the manufacture of farming implements, namely, from £220,000 in 1867 to one million sterling in 1885.

AUSTRIA

In sixty years the production of iron has grown nearly tenfold, and Austria now holds sixth place. The production and consumption were approximately :—

Year	Tons		Lbs. per Inhabitant	Steel, Tons
	Production	Consumption		
1830 . .	80,000	100,000	9	...
1850 . .	140,000	160,000	12	...
1870 . .	400,000	430,000	28	22,000
1888 . .	760,000	770,000	45	280,000

Austria proper in 1888 produced 565,000, and Hungary 195,000, tons pig-iron.

ITALY

The production and consumption were approximately as follows :—

Year	Tons Iron		Lbs. per Inhabitant	Steel, Tons
	Production	Consumption		
1830 . .	10,000	20,000	3	...
1860 . .	40,000	75,000	8	...
1870 . .	50,000	100,000	9	...
1887 . .	70,000	290,000	22	20,000

A statement published in 1877 was as follows as to production :—

Year	Tons		Value, £		
	Bar Iron	Steel	Bar Iron	Steel	Total
1860 . . .	30,000	...	540,000	...	540,000
1870 . . .	38,000	1,000	660,000	25,000	685,000
1876 . . .	49,000	3,000	720,000	56,000	776,000

Italy pays £1,200,000 for imported pig and bar iron, which she converts into merchandise worth £3,200,000.

SPAIN

Although Spain possesses some of the best iron-fields in the world, her production is small, and she is forced to import 30 per cent. of what is used in her foundries. Meantime she exports 5 million tons yearly of iron ores. The production and consumption approximately were :—

Year	Tons		Lbs. per Inhabitant	Steel, Tons
	Production	Consumption		
1830 . .	20,000	40,000	8	...
1850 . .	40,000	80,000	13	...
1870 . .	70,000	150,000	23	...
1889 . .	230,000	300,000	37	30,000

Spain pays £700,000 a year for imported pig and bar iron : her manufactures of iron and steel are approximately worth £2,700,000.

SWEDEN

In the beginning of the nineteenth century Sweden produced as much iron as Germany, but her production now is only one-tenth of that of the latter country. She holds eighth rank, coming next after Russia. The production and consumption were approximately :—

Year	Tons Iron		Lbs. per Inhabitant	Steel, Tons
	Production	Consumption		
1812 . .	65,000	40,000	37	...
1830 . .	105,000	80,000	60	...
1850 . .	130,000	100,000	63	...
1870 . .	290,000	210,000	105	6,000
1889 . .	460,000	380,000	170	80,000

Sweden exports yearly 200,000 tons bar iron and 60,000 tons pig-iron. Her manufactures of iron and steel are about £4,200,000.

BELGIUM

In 1816 Mr. John Cockerill, from England, introduced the method of smelting with coke, and established at Seraing one of the finest ironworks in Europe. The industry advanced greatly after the separation from Holland in 1830, but its most striking progress has been in the last thirty years. Official returns since 1845 show as follows:—

Year	Blast Furnaces	Operatives	Output, Tons	
			Iron	Steel
1845 . . .	56	14,600	62,000	...
1850 . . .	65	11,600	73,000	...
1860 . . .	51	26,300	218,000	...
1870 . . .	48	41,200	523,000	4,000
1880 . . .	36	37,300	493,000	132,000
1887 . . .	29	34,100	534,000	216,000

The exports of bar and wrought iron were as follows:—

Year	Tons	Value, £	Year	Tons	Value, £
1860	63,000	440,000	1875	183,000	2,000,000
1865	118,000	800,000	1880	228,000	1,600,000
1870	220,000	1,400,000	1887	335,000	1,600,000

The iron and steel manufactures are worth about £10,600,000.

UNITED STATES

In 1620 a group of forty ironworkers arrived from Sussex, England, and commenced to make iron, but in 1662 a decree was issued to prohibit the importation of this metal, with the view to promote iron manufactures in the Colony. This prohibition was removed in 1682. The first regular foundry in North America was that established by Joseph Jenks in 1663, at Lynn, Massachusetts. There were six existing in the Colonies in 1750, when the British Parliament passed a law to close all mills, forges, or furnaces in the Colonies, the better to protect British manufactures. After the Independence this branch of industry made progress, but soon collapsed, owing to the influx of British merchandise. In 1833 Frederick Gersenhamer obtained a patent for using hot-blast with anthracite coal, and in 1835 produced the first iron so made.

The total output of iron, which was only 40,000 tons in 1796, rose to 287,000 in 1840, viz. :—

						Tons
Pennsylvania	.	.	.	.	.	98,000
Ohio .	.	.	.	.	.	35,000
Other States	.	.	.	.	.	154,000
		Total	.	.	.	287,000

A table published in the latter year compared the production and the number of operatives with 1830 as follows:—

Year		Operatives	Tons Iron	Tons per Man
1830	.	. 29,000	184,000	6.3
1840	.	. 56,000	287,000	5.1

From this time the construction of railways, especially after the war of 1861–65, gave a great impetus to this industry, the production being as follows:—

Year						Tons
1850	.	.	.	.	.	564,000
1870	.	.	.	.	.	1,580,000

In 1873 there were 719 furnaces at work. In 1889 the output of pig-iron reached 7,600,000 tons, being second only to Great Britain.

The Census returns of foundries and ironworks showed thus :—

	1870	1880
Hands . . .	78,000	141,000
Wages, £ .	7,500,000	11,600,000
Manufactures, £ .	37,400,000	62,000,000 .

The production of pig-iron in 1888 and 1889 was as follows :—

		1888 Tons	1889 Tons
Pennsylvania	.	3,200,000	3,730,000
Ohio .	. .	990,000	1,090,000
Other States .	.	2,300,000	2,780,000
Total	.	6,490,000	7,600,000

The manufacture of steel dates from 1808, as follows :—

Year							Tons
1808	.	.	.	.	.	.	900
1850	.	.	.	.	.	.	2,000
1860	.	.	.	.	.	.	12,000
1870	.	.	.	.	.	.	64,000
1876	.	.	.	.	.	.	520,000
1889	.	.	.	.	.	.	3,390,000

At present the United States produce one-third the steel of the world. The make of steel in 1889 included 1,510,000 tons of rails.

The rivalry between Great Britain and the United States in iron and steel production is thus indicated by Mr. Swank :—

	Great Britain, Tons		United States, Tons	
	1882	1889	1882	1889
Pig-iron . .	8,580,000	8,250,000	4,620,000	7,605,000
Steel ingots .	1,670,000	2,140,000	1,510,000	2,930,000
Steel rails .	1,230,000	940,000	1,280,000	1,510,000

The production of steel of all descriptions in 1889 was 3,690,000 tons in Great Britain and 3,390,000 in the United States.

IRRIGATION

FRANCE

Only 260,000 acres irrigated, which yield crops worth £3 per acre more than ordinary.

ITALY

The canals in the Po valley irrigate 1,370,000 acres, which receive every day in summer 45 million tons of water, measured through a great number of little sluice-gates : the permanent right to an inch of water is worth from £500 to £800. The usual rent of these lands is £6 per acre per annum.

BELGIUM

Since 1859 an area of 160,000 acres of waste lands has been made valuable by irrigation, adjoining State canals.

SPAIN

Land unwatered may be rented at 5s. an acre, but the irrigated lands of Valencia, where the old canals and works of the Moors remain, readily rent at £5 per acre. The total area of irrigated lands is 2½ million acres.

ALGERIA

The most important work is the "barrage" at Habra, with a basin holding 30 million tons of water, the main wall being 110 feet high, 120 feet thick, and 1500 feet long. The distributory canals are 310 miles, irrigating 70,000 acres. It belongs to a French Company, and cost £160,000.

Y

EGYPT

During his reign of seventeen years, from 1863 to 1879, Ismael Pasha constructed 112 canals branching from the Nile, to irrigate 1,400,000 acres, with an aggregate length of 8400 miles, the cost amounting to about 12 millions sterling. The lands thus newly irrigated produce crops worth £10,600,000, or 22 per cent. of the total value of Egyptian crops. The actual length of Nile canals is 52,000 miles, the task of irrigation employing 476 steam-pumps, 107,000 Persian water-wheels, 150,000 men, and 60,000 animals, at an annual cost averaging 4s. per acre.

INDIA

The Ganges Canal irrigates 400,000 acres, is 880 miles long, having 902 bridges and 297 aqueducts, and cost £2,400,000. In the Madras Presidency irrigation is also carefully studied : there are 53,000 tank-reservoirs, 30,000 miles of dykes, the whole having cost 16 millions sterling, and producing a revenue of £1,500,000 per annum. The largest reservoir or artificial lake in the world is the great tank of Dhebar, Rajputana, which covers an area of 21 square miles. The masonry dam is 1000 feet long by 95 feet high, 50 feet wide at the base, and 15 feet at the top.

CYPRUS

The canals made by the Venetians had fallen to ruin under the Turks, but many of them have been restored by British engineer officers since 1878. Irrigated lands yield three times heavier crops than the rest of the island.

CALIFORNIA

Since 1870 there have been constructed 2000 miles of canals, irrigating more than 10 millions of acres.

SOUTH AMERICA

The Incas had a perfect network of canals irrigating the lands on the western slope of the Andes. Near Mendoza, at the eastern foot of the Andes, still exists the Zanjon or canal made by the Cacique Guaymallen, irrigating a tract of eighteen miles of country.

AUSTRALIA

The Melbourne Government has already spent £470,000, and proposes to spend two millions more on works of irrigation.

J.

JEWELLERY

Diamonds

Weight in Carats of Six Largest

Kohinoor	. 103	Austrian Kaiser	.	. 139
Star of Brazil	. 125	Russian Czar	.	. 193
Regent of France	. 136	Rajah of Borneo	.	. 367

The value of the above is not regulated by size, nor easy to estimate, but none of them is worth less than £100,000.

Scale of Value for Small Stones

	£		£
1 carat	8	5 carat	200
3 carat	72	10 carat	800

Cape diamonds are of inferior value ; one of the largest, the Stewart, found in November 1872, sold for £11,000, weighing 288 carats uncut. The Kimberley field, covering nine acres, has produced diamonds to the value of 15 millions sterling since 1871, the diggings being from 100 to 170 feet deep. The annual export of diamonds from the Cape is about 1400 lbs., worth over four millions, and the fields employ 2000 white and 22,000 coloured diggers. In 1889 the value of diamonds extracted was £4,300,000 sterling. The total product in eighteen years was approximately 46,000,000 carats, worth £56,000,000 sterling.

Emerald.—The ordinary value is as follows :—

Grains		£	Grains		£
5	. . .	5	15	. . .	50
10	. . .	20	24	. . .	100

Opal.—The Emperor of Austria has one for which he refused £50,000 : it weighs 17 oz.

Pearls.—The pearl-fishery of Ceylon in 1890 only lasted 22 days, and during that period 11,000,000 oysters were brought to the surface by fifty divers. They are paid by one-fourth of the number. This season the whole produce was sold at the rate of 24s. per 1000 shells. The Government received £20,000 as their share, and the divers £6400. The largest pearls are worth in Ceylon from £40 to £60, and in Europe they fetch three times the price or more.

JEWS

	1860	1880	Increase
Russia	2,025,000	2,621,000	596,000
Austria	1,048,000	1,375,000	327,000
Germany	393,000	512,000	119,000
France	88,000	49,000	...
Holland	63,000	78,000	15,000
Great Britain . .	45,000	51,000	6,000
Italy	33,000	35,000	2,000
Turkey, &c. . .	260,000	280,000	20,000
Europe	3,955,000	5,001,000	1,046,000
Morocco . . .	340,000	350,000	10,000
Tripoli	160,000	170,000	10,000
Algeria	82,000	133,000	51,000
Egypt	7,000	8,000	1,000
America	85,000	110,000	25,000
Asia	200,000	200,000	...
Total . .	4,829,000	5,972,000	1,143,000

The vital statistics of Jews in Germany compare with those of Christians as follows : —

Births	Jews per Cent.		Europeans per Cent.
Excess of male births .	16	...	5
Illegitimate births . .	2	...	6
Still-births . . .	2½	...	4½

Age	Marrying Age			
	Jews		Europeans	
	Males	Females	Males	Females
Under 20 .	2.2	23.5	1.8	12.1
20–30 . . .	66.4	58.5	62.6	65.6
30–40 . . .	17.4	9.8	25.3	16.2
40–50 . . .	7.4	5.4	6.2	4.6
Over 50 . .	6.6	2.8	4.1	1.5
Total .	100.0	100.0	100.0	100.0

RATIO OF DEATHS

Age	Jews		Christians, Both Sexes
	Males	Females	
Under 1 . . .	38.4	33.7	29.3
1–5	18.5	16.7	19.2
5–10	4.7	4.3	4.9
10–20	4.3	4.5	4.6
20–40	8.5	12.5	11.3
40–60	12.0	13.3	12.9
Over 60	13.6	15.0	17.8
Total . .	100.0	100.0	100.0

The life-value of Prussian Jews compares with that of Christians as follows :—

SURVIVAL OF 1000 PERSONS BORN

Age	Jews, Prussia	Christians	
		Prussia	England
5	593	639	751
10	535	620	727
15	514	610	714
20	482	602	699
30	432	562	650
40	364	506	587
50	305	438	506
60	237	345	398
70	153	206	253
80	62	80	108

JUTE

In 1828 India produced 18 tons of jute, valued at £62 sterling, say 70s. a ton ; but it rapidly rose both in quality and price, the export from that country showing thus :—

Year	Tons	Value, £	Per Ton
			£ s. d.
1835	600	...	...
1850	19,500	89,000	4 10 0
1860	38,000	290,000	7 12 0
1870	120,000	1,520,000	12 13 0
1880	305,000	4,880,000	16 0 0
1890	501,000	6,500,000*	13 0 0

The cost of cultivation averages 16s. an acre, the yield half a ton per acre, worth £6.

There were in 1889 in India twenty-five factories, with 160,000 spindles, 8000 power-looms, and 61,000 operatives, consuming annually 190,000 tons of jute, and turning out 100 million sacks, of which California took 20 and China 15 millions.

Jute factories in the United Kingdom have increased as follows :—

	1870	1885
Number . . .	63	120
Spindles . . .	115,000	264,000
Power-looms . .	4,300	12,000
Operatives . . .	18,000	42,000

* The nominal value was £8,600,000, taking the rupee at 24d.

The manufacture in the United Kingdom showed approximately thus :—

Year	Consumed, Tons	Make, Million Yards	Export, Million Yards	Export Yarn, Million Lbs.	Manufactures, Value, £
1850	19,000	63	...	...	900,000
1860	38,000	126	...	...	1,900,000
1870	98,000	300	52	13	4,700,000
1880	178,000	560	183	17	7,200,000
1889	268,000	810	265	34	9,100,000

The output averages at present only £215 per operative yearly, against £260 in 1870, the price having fallen from 365d. to 216d. per 100 yards. The number of yards produced per operative is about 19,000 yards, or 11 miles yearly.

The jute manufacture since 1850 may be summed up approximately thus :—

Period	Great Britain	Other Countries	Total	Value of Manufacture, Millions £	Price of Cloth, £ per Mile
1851–60	500,000	100,000	600,000	17	29
1861–70	1,200,000	400,000	1,600,000	43	27
1871–80	2,500,000	1,500,000	4,000,000	96	24
1881–88	2,700,000	3,200,000	5,900,000	118	20
Total	6,900,000	5,200,000	12,100,000	274	23

The value of manufactured goods produced in thirty-eight years was shared approximately as follows :—

	Million £
Great Britain	160
India	21
Other countries	93
Total . . .	274

The profit of this industry to Great Britain appears thus :—

Period	Millions £ Sterling		
	Raw Jute	Manufactured	Net Product
1851–60 . . .	2	14	12
1861–70 . . .	7	32	25
1871–80 . . .	20	60	40
1881–88 . . .	24	54	30
38 years . . .	53	160	107

This industry enriched the United Kingdom by over three millions sterling per annum in the last thirty years, of which apparently about £1,500,000 a year went in wages. The above, moreover, does not include exported yarn, the total value of which in thirty-eight years amounted to five millions sterling, thus bringing up the total net product to 112 millions sterling.

K.

KANGAROO

These animals will soon be extinct, as the squatters kill them wholesale. The export of kangaroo skins from Melbourne was as follows :—

Year				No.	Value, £
1883	.	.	.	20,000	1,500
1888	.	.	.	260,000	54,000

Kangaroos can jump a fence 11 feet high.

KOUMISS

Extracted by the Tartars from mares' milk, a gallon of milk giving three ounces of Koumiss brandy.

KINGS

There are 22 kings or emperors. The number who have ruled in various countries since the battle of Hastings, A.D. 1066, has been as follows :—

	No.	Average Reign, Years		No.	Average Reign, Years
England . .	35	23	Spain . . .	32	26
France . . .	34	24	Denmark .	39	21
Germany . .	39	21	Sweden . .	53	15
Russia . . .	50	16	Turkey . .	35	17

The Turkish dynasty dates only from 1299. The average reign of the above 317 monarchs was just twenty years.

L.

LABOURER

Dr. Farr estimates the value of an agricultural labourer to the commonwealth as follows :—

Age	Value, £	Age	Value, £	Age	Value, £
10	. . . 117	30	. . . 241	55	. . . 138
15	. . . 192	35	. . . 228	60	. . . 97
20	. . . 234	40	. . . 212	65	. . . 46
25	. . . 246	50	. . . 168	70	. . . 0

These figures of Dr. Farr have been often called in question as being too high, but the best authorities in the United States and Australia set even a higher value on able-bodied immigrants.

LACE

This industry employs in Great Britain 9000 men and 41,000 women, who produce lace annually to the value of 6 millions sterling. It is stated that more than 500,000 women on the Continent make lace worth 30 millions yearly, or £60 each, but this seems a high average.

LAKES

The following table is merely intended as a comparison of some of the most remarkable lakes in the world :—

	Square Miles	Depth, Feet	Area Equal to
Superior . .	32,100	688	Ireland
Victoria Nyanza .	26,900	...	...
Aral . .	23,300	731*	Holland
Huron . .	20,400	600	Greece
Baikal . .	14,800	580	Denmark
Michigan . .	12,900	690	Belgium
Erie . .	9,600	84	Sardinia Island
Ontario . .	7,650	510	...
Ladoga . .	6,250	...	Wurtemburg
Onega . .	3,350	...	Corsica
Wenner . .	2,130	294*	Devonshire
Wetter . .	733	410	Oxfordshire
Constance . .	180	1,027*	Isle of Man
Neagh . .	153	42	Malta
Maggiore . .	130	700	...
Zurich . .	40	600	St. Helena

* Maximum depth; the rest show the average depth.

LAND

The following conspectus shows at a glance the distribution and tenure of land in various countries, the number of owners, the approximate value, the cultivated area, and other important features. The "data" do not correspond to any particular year, but represent the latest information :—

	Area, Millions of Acres			Number of Owners	Average Acres per Estate	Value of Land, Million £
	Cultivated	Uncultivated	Total			
U. Kingdom	48	30	78	180,000	390	1,544
France . .	90	41	131	3,226,000	32	2,688
Germany .	65	68	133	2,436,000	37	1,815
Russia . .	345	899	1,244	11,336,000	31	1,507
Austria . .	73	80	153	6,150,000	20	1,371
Italy . . .	27	44	71	1,265,000	36	1,182
Spain . . .	22	99	121	596,000	95	984
Portugal . .	5	17	22	419,000	30	132
Sweden . .	12	89	101	194,000	300	240
Norway . .	3	74	77	75,000	200	100
Denmark .	7	2	9	71,000	115	217
Holland . .	5	3	8	154,000	45	314
Belgium . .	5	2	7	315,000	18	377
Greece . .	2	9	11	163,000	30	138
Europe . .	709	1,457	2,166	26,580,000	48	12,609
United States	205	2,086	2,291	4,005,000	134	2,560
Canada . .	16	1,902	1,918	408,000	120	282
Australia . .	12	1,846	1,858	168,000	380	535
Argentina .	7	770	777	...	...	111
Total .	949	8,061	9,010	31,161,000	70	16,097

Colbert in his letter to Louis XIV. estimated the value of land in France, England, and Holland in the seventeenth century (1660) as follows :—

	Value	Rental	Per Acre	
			Value	Rental
	£	£	s.	s.
France . .	122,000,000	15,000,000	24	3
England . .	135,000,000	8,500,000	90	6
Holland . .	46,000,000	4,000,000	180	15

UNITED KINGDOM

The rental of the three kingdoms has been at various dates as follows :—

A.D.					England £	Scotland £	Ireland £	United Kingdom £	Authority
1544	.	.	.	.	1,500,000	...	...	...	Haydn
1600	.	.	.	.	6,000,000	...	...	...	,,
1660	.	.	.	.	8,500,000	...	...	...	Colbert
1688	.	.	.	.	10,000,000	...	900,000	...	King, Petty
1729	.	.	.	.	...	...	2,025,000	...	Browne
1750	.	.	.	.	12,700,000	800,000	3,100,000	16,600,000	...
1776	.	.	.	.	16,000,000	1,100,000	5,340,000	22,440,000	Young
1800	.	.	.	.	22,500,000	2,100,000	8,000,000	32,600,000	{ M'Culloch, Newenham
1815	.	.	.	.	34,330,000	5,075,000	7,100,000	46,505,000	M'Culloch
1843	.	.	.	.	40,170,000	5,590,000	8,630,000	54,390,000	Official
1860	.	.	.	.	42,990,000	6,280,000	8,990,000	58,260,000	,,
1870	.	.	.	.	47,800,000	7,190,000	9,140,000	64,130,000	,,
1880	.	.	.	.	51,800,000	7,770,000	9,980,000	69,550,000	,,
1888	.	.	.	.	44,470,000	6,820,000	9,960,000	61,250,000	,,

Since 1880 the valuation of England has been reduced 14 per cent., that of Scotland 13 per cent., that of Ireland nothing. The Local Government Board estimated the real land rental of the three kingdoms in 1878 thus :—

	Rental, £	Extent, Acres	Number of Proprietors	Average Estate		Shillings per Acre
				Acres	Rental, £	
England	70,240,000	32,860,000	262,850	125	266	44
Scotland	12,900,000	18,920,000	19,225	980	670	14
Ireland	12,050,000	20,150,000	32,610	620	370	12
United Kingdom . .	95,190,000	71,930,000	314,685	230	310	26

If we exclude owners of less than ten acres, we find the landed property of the three kingdoms, according to the Local Government Report, is held thus :—

	10 to 100 Acres	Over 100	Total No. of Owners	Rental, £	Average, £
England . .	99,000	42,100	141,100	63,800,000	450
Scotland . .	4,700	5,020	9,720	11,470,000	1,180
Ireland . .	11,200	14,500	25,700	11,550,000	450
U. Kingdom	114,900	61,620	176,520	86,820,000	495

ENGLAND

The estate-owners in England of more than one acre are as follows (Local Government Board Report) :—

Holding Acres	Number of Owners	Acres Owned	Annual Rental, £	Shillings per Acre	Percentage of Area
Under 50	194,620	2,230,000	12,950,000	116	7.0
50–100	25,840	1,790,000	4,300,000	48	5.4
100–500	32,320	6,830,000	13,680,000	40	20.8
Over 500	10,070	22,010,000	39,310,000	36	66.8
Total	262,850	32,860,000	70,240,000	44	100.0

SCOTLAND

Holding Acres	Number of Owners	Acres Owned	Annual Rental, £	Shillings per Acre	Percentage of Area
Under 50	12,940	110,000	2,270,000	413	0.6
50–100	1,210	90,000	380,000	84	0.5
100–500	2,370	560,000	1,680,000	60	2.9
Over 500	2,705	18,160,000	8,570,000	9	96.0
Total	19,225	18,920,000	12,900,000	14	100.0

IRELAND

Holding	Owners	Acres	Rental, £	s. p. Acre	Per Cent.
Under 50	14,600	224,000	980,000	88	1.1
50–100	3,500	250,000	310,000	25	1.2
100–500	8,010	1,956,000	1,770,000	18	9.7
Over 500	6,500	17,720,000	8,990,000	10	88.0
Total	32,610	20,150,000	12,050,000	12	100.0

UNITED KINGDOM

Holding	Owners	Acres	Rental, £	s. p. Acre	Per Cent.
Under 50	222,160	2,564,000	16,200,000	122	3.6
50–100	30,550	2,130,000	4,990,000	47	3.0
100–500	42,700	9,346,000	17,130,000	38	13.1
Over 500	19,275	57,890,000	56,870,000	20	80.3
Total	314,685	71,930,000	95,190,000	26	100.0

The number of farmers in the United Kingdom was :—

Holding Acres	England	Scotland	Ireland	United Kingdom	Percentage
Under 5 . .	114,000	21,000	62,000	197,000	18.7
5–50 . .	200,000	33,000	365,000	598,000	57.2
50–100 .	55,000	10,000	56,000	121,000	11.5
100–500 .	79,000	15,000	31,000	125,000	11.9
Over 500 .	5,000	1,000	1,000	7,000	0.7
Total .	453,000	80,000	515,000	1,048,000	100.0

Acres	Area of Farms, Acres			Percentage
Under 50	4,100,000	700,000	7,800,000	12,600,000	26.5
50–100 .	3,900,000	700,000	4,400,000	9,000,000	18.8
Over 100	19,600,000	3,400,000	3,100,000	26,100,000	54.7
Total	27,600,000	4,800,000	15,300,000	47,700,000	100.0

The above refers only to the cultivated area. In all these tables properties or holdings of less than an acre are excluded.

In some parts of England rent has quadrupled in 120 years. For example, the farm of One Ash Grange, on the Duke of Devonshire's property, Derbyshire, has been let as follows :—

1769 at	.	.	. £190	1855 at	. . . £610
1788 ,,	.	.	. 242	1876 ,,	. . . 700
1810 ,,	.	.	. 440	1888 ,,	. . . 900

The average rental valuation of land in the three kingdoms was as follows :—

A.D.	Shillings per Acre				Cultivated Area, Acres
	England	Scotland	Ireland	United Kingdom	
1760	11	6	5	10	37,100,000
1776	14	8	9	11	38,600,000
1800	18	12	13	16	40,320,000
1815	28	25	15	24	42,500,000
1843	32	28	12	24	43,800,000
1860	34	30	12	25	44,000,000
1870	35	33	13	28	46,000,000
1880	36	34	14	28	47,600,000
1888	32	29	14	26	47,880,000

The official rental valuation in England in 1810 for various counties was :—

Shillings per Acre

Leicester	.	.	. 28	Lincoln	.	.	18
Somerset	.	.	. 27	Surrey	.	.	17
Worcester	.	.	. 24	Devonshire	.	.	16
Warwick	.	.	. 23	Cornwall	.	.	15
Lancashire	.	.	. 22	Monmouth	.	.	14
Stafford	.	.	. 21	Durham	.	.	9
Kent	.	.	. 20	Cardigan	.	.	6
Bedford	.	.	. 19				

In 120 years more than 10 million acres of waste land in the United Kingdom have been enclosed, viz. :—

Period	Acres	
	Quantity	Per Annum
1760–1800	3,221,000	81,000
1801–1829	3,380,000	116,000
1830–1869	2,217,000	55,000
1870–1879	1,687,000	169,000
Total . .	10,505,000	88,000

It is doubtful whether the reclaimed lands are now worth what they have cost.

IRELAND

According to a report quoted by Mr. Molinari in 1880 the estated property of Ireland was held thus :—

Proprietors	Number	Acres Owned	Assessed Rental £	Percentage of Area
Resident on estate	3,966	9,733,000	5,090,000	52.4
Resident in Dublin	4,465	4,362,000	2,130,000	23.2
Absentees . . .	1,623	4,514,000	2,140,000	24.4
Total . .	10,054	18,609,000	9,360,000	100.0

The above seems to exclude all estate-owners of less than 100 acres, the number of whom (as already shown) is 18,000. See preceding page.

As regards tenants, the number has been as follows :—

Holding Acres	1841	1851	1861	1871	1878
1–5 . . .	310,000	88,000	86,000	75,000	66,000
5–15 . . .	253,000	192,000	184,000	171,000	163,000
Over 15 . .	128,000	290,000	299,000	298,000	298,000
Total .	691,000	570,000	569,000	544,000	527,000

The amount of rental drawn by absentee landlords has been :—

Date	Rental of Ireland £	Drawn by Absentees £	Absentee Ratio Per Cent.	Authority
1729	2,025,000	627,000	31	Browne, Prior
1776	5,340,000	1,610,000	30	Young
1880	9,360,000	2,140,000	23	Molinari

The progressive rise of rent in Ireland is shown in Dr. Todd's evidence (July 1890) at the House of Commons respecting a certain estate in that country :—

Year	Per Annum, £
1609	1,800
1635	2,200
1697	9,150
1758	20,000
1858	131,000
1882	160,000

The landed property of Ireland changed masters three times in 100 years,—first confiscation under Elizabeth, A.D. 1590–1600; second under Cromwell, 1650–52; third under William III., 1690–92. The following recent changes of tenure are remarkable :—

I. Encumbered Estates Court (established 1850).—Sold in thirty years down to 1880, estates covering 4,930,000 acres for £52,700,000, say £11 per acre, in 12,400 lots, averaging 400 acres each. The purchase-money represented 85 per cent. by Irish, 15 per cent. Scotch or English buyers.

II. Bright's Act.—From 1870 to 1880 the tenants bought 49,000 acres for £860,000, of which the Government advanced 60 per cent. (£516,000). Average price paid, £17 per acre.

III. Church Act.—From 1870 to 1885 about 6000 tenants bought their farms, covering —— acres, for £1,674,000, the Government advancing £1,200,000, say 75 per cent. Price paid was 22½ years' rental. Of the sums advanced by Government, only £6000 was due by the purchasers in 1888 (Official Report, November 1888).

IV. Gladstone's Act, August 1881.—In seven years ending August 1888 the Land Court altered the rents of 243,490 farms, viz. :—

	£
Old rent	3,852,000
New rent	3,094,000

This was a reduction of 20 per cent. There were also 61,300 cases pending inquiry.

V. The Ashbourne Act, passed in 1885, regarding which an official report in 1890 was as follows :—

Year	Farms Bought	Price, £	Sum Lent, £	Years of Rental	Net Rental, £
1886	2,426	1,095,000	1,065,000	18.0	61,000
1887	4,636	1,925,000	1,903,000	17.6	110,000
1888	4,384	1,776,000	1,750,000	17.0	104,000
1889	2,574	1,170,000	1,155,000	16.4	71,000
4 years	14,020	5,966,000	5,873,000	17.3	346,000

In four years the tenants were enabled to purchase nearly 3 per cent. of Ireland as measured by rental; thus

in 132 years the Ashbourne Act would settle the agrarian question.

FRANCE

The official valuation of lands (which appears high) gave the following summary in 1881 :—

Quality	Acres	Value per Acre, £	Value, Millions £
Orchards . . .	1,783,000	81	144
Vineyards . . .	5,445,000	44	239
Meadows . . .	6,170,000	55	340
Arable	41,319,000	36	1,488
Pasture, &c. . .	23,010,000	18	414
Forest	21,288,000	12	256
Waste	17,516,000	6	105
Total . .	116,531,000	26	2,986

The rise in the value of land from 1852 to 1881 appears in the official valuation thus :—

£ per Acre

	1852		1881
Arable . . .	24	...	36
Meadow . . .	36	...	55
Vineyards . . .	32	...	44

According to the Government inquiry of 1815, France comprised 1,854,000 farms (exclusive of 1,952,000 under five acres), classified as follows :—

Average	Number	Area, Acres	Ratio of Area	Ratio of Holdings
10 . . .	930,000	8,750,000	8.1	50.2
20 . . .	259,000	5,900,000	5.5	14.1
30 . . .	259,000	7,450,000	7.0	13.9
55 . . .	218,000	11,920,000	11.1	11.7
150 . . .	169,000	26,040,000	24.2	9.1
2200 . .	21,400	47,500,000	44.1	1.1
Total . .	1,854,400	107,560,000	100.0	100.0

The number of Côtes Foncières and the probable number of owners above five acres was :—

Year		Côtes	Landowners
1826 . . .		10,300,000	1,300,000
1835 . . .		10,900,000	1,400,000
1851 . . .		12,400,000	1,500,000
1861 . . .		13,700,000	1,700,000
1871 . . .		13,800,000	1,700,000
1885 . . .		14,075,000	1,825,000

The returns for 1885 showed the owners of less than five acres to be 10,426,000 in number. Of the remainder, it is believed by French economists that the number of côtes is double that of actual owners, by reason of repetition, one person holding two or three properties. The real number of landowners, therefore, in 1885 was as follows :—

Acres	Côtes	Land Owners	Acres	Acres per Owner
5-15 . .	2,174,000	1,087,000	18,860,000	17
15-125. .	1,352,000	676,000	48,040,000	72
125-500 .	106,000	53,000	23,890,000	450
Over 500 .	18,000	9,000	20,050,000	2,200
Total .	3,650,000	1,825,000	110,840,000	60

The number of Côtes Foncières over 12 acres in 1862 was 1,411,000 by the Government returns, whereas the number over 15 acres in 1885 was 1,476,000, which shows a marked increase.

The tenure of land in 1862 and in 1873 was as follows:—

	Number		Acres Held in 1873	Ratio of Area in 1873	Ratio of Cultivation in 1873
	1862	1873			
Owners .	1,813,000	2,826,000	42,530,000	50.1	71.0
Tenants .	1,035,000	832,000	29,900,000	35.2	21.0
Metayers*	405,000	319,000	11,920,000	14.7	8.0
Total .	3,253,000	3,977,000	84,350,000	100.0	100.0

The farms cultivated by owners averaged 15 acres in extent, those of tenants and metayers 35 acres. In 1882 the area cultivated by metayer had declined, viz.:—

Acres

Tilled by owner	50,500,000
Tilled by tenant	22,800,000
Tilled by metayer	11,100,000
Total . . .	84,400,000

In eight years ending 1887 there were 39,300,000 acres sold in France, in lots averaging 4½ acres, that is, nearly five million acres yearly.

GERMANY

The German Empire comprises 5,276,000 farms, viz.:—

Cultivated by owner . . .	2,953,000
Cultivated by tenants . . .	829,000
Farms of mixed character . .	1,494,000
Total . .	5,276,000

It appears, therefore, that about 85 per cent. of the farms are cultivated wholly or in part by their owners, as compared with 71 per cent. in France.

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* System by which landlord receives share of the crops instead of a fixed rent.

If we exclude all farms under 2½ acres, we find the total in Germany reduced to 2,953,000, held as follows :—

Size, Acres	Number of Farms Held			Area, Acres			Ratio of Area
	By Owner	By Tenant	Total	Cultivated	Wood and Pasture	Total	
2½-12	1,613,000	107,000	1,720,000	10,600,000	2,100,000	12,700,000	12.9
12-50	911,000	16,000	927,000	22,900,000	5,800,000	28,700,000	29.3
50-125	234,000	6,000	240,000	17,900,000	4,800,000	22,700,000	23 2
Over 125	58,000	8,000	66,000	26,300,000	7,800,000	34,100,000	34.6
Total . .	2,816,000	137,000	2,953,000	77,700,000	20,500,000	98,200,000	100.0

The number of land-owners is of course less than that of farms, the returns for 1869 showing as follows :—

	Owners	Extent, Acres	Average, Acres
Prussia	1,033,000	49,000,000	48
Bavaria	456,000	11,000,000	25
Saxony	54,000	2,500,000	46
Wurtemburg . .	152,000	2,500,000	17
Baden	111,000	1,700,000	15
Darmstadt . . .	140,000	1,400,000	10
Small States . .	490,000	19,500,000	40
Total . .	2,436,000	87,600,000	36

PRUSSIA

The total area of Prussia is 86 million acres, but this includes 23 millions of mountain and forest. The tenure in 1869 was as follows :—

Held by	Number of Estates	Acres	Average, Acres
Crown . .	...	11,200,000	...
Nobles . .	22,470	21,200,000	950
Farmers . .	1,503,000	44,800,000	30
Cottiers . .	1,087,000	3,100,000	3
Total .	2,612,470	80,300,000	26

In 1859 the nobles held 37,900,000 acres, but in the ensuing ten years their possessions were reduced by 16,700,000 acres, broken up into farms for the peasantry.

The farmers alluded to in the above table, excluding princes and cottiers, held their land thus :—

Estate of, Acres	Number	Acres	Average
5–20 . . .	1,100,000	11,000,000	10
20–200 . .	390,000	28,000,000	72
Over 200 . .	13,000	6,000,000	460
Total .	1,503,000	45,000,000	30

The owners, as already shown, numbering 1,033,000, it appears that for two owners there are three estates.

In Saxony the Crown owns 1,077,000 acres, and the rest is held thus :—

By	Number	Acres	Average
Nobles . .	440	490,000	1,100
Farmers . .	53,000	1,440,000	27
Cottiers . .	33,000	160,000	5
Total .	86,440	2,090,000	24

In Bavaria the Crown owns 3,430,000 acres, and the rest is held thus :—

By	Number	Acres	Average
Nobles . .	1,100	400,000	370
Farmers . .	226,000	11,700,000	50
Cottiers . .	290,000	1,500,000	5
Total .	517,100	13,600,000	26

In Wurtemburg the Crown owns 1,100,000 acres, and the rest is held as follows :—

By	Number	Acres	Average
Nobles . .	718	650,000	840
Farmers . .	85,000	1,900,000	22
Cottiers . .	246,000	750,000	3
Total .	331,718	3,300,000	10

The Stein law transferred nearly the half of Germany from the nobles to the peasantry. The nobles received Consols equal to eighteen years' rental of the lands taken from them. The peasants were compelled to pay a land-tax equal to 5 per cent. during forty-seven years, the land to be free to them after that period.

RUSSIA

Down to 1860 the land was almost equally held by the Crown and the nobles, the former possessing 26,200,000 serfs, the latter 21,800,000, by whom the soil was cultivated. Crown-serfs were in reality tenants, who paid 6d. an acre yearly rent, the farm of each family averaging 35 acres. They were emancipated in 1861, receiving their lands in fee on condition of paying 12s. a year for each male serf (three usually going to a family) during forty years. The other serfs were also tenants, although bought and sold like cattle, each family holding a farm of about 30 acres, subject to a rent of £6, or else the obligation to work two days each week for their masters. Lavish expenditure had so much encumbered the estates of nobles that in 1859 they had mortgaged 7,107,000 serfs and 102 million acres of land for sums in the aggregate reaching 60 millions sterling.

Between 1861 and 1870 the Government bought up from the nobles 40,954 estates, covering 35,000,000 acres, at an average cost of 35s. an acre, the Crown paying five-sixths, the serfs one-sixth of the amount, which was £61,100,000. The assessment, however, was made according to the number of serfs, the owners receiving £3 per head for 20,700,000 serfs; but the option was left to the serfs of receiving "beggar lots" of 10 acres free, in which case the noble received no indemnity. About 610,000 families preferred these lots, which they received free of conditions, the lands thus ceded to them covering 6,440,000 acres. The rest received farms of about 30 acres each, subject to a Crown-rent of 2s. an acre for forty-nine years.

In 1870 the arable land was held as follows :—

Owners		Acres
Nobles	.	83,500,000
Peasants . . .	.	88,700,000
Crown, merchants, &c.	.	133,000,000
Total .	.	305,000,000

Strebinsky's report in 1879 showed that 19,700,000 male serfs (6,600,000 families) possessed 68 million dessiatines or 186 million acres, that is, an average of 27 acres per family. He made a catastral survey of eight provinces, viz., Koursk, Tula, Voroneja, Tambow, Penza, Oral, Riazan, and Kalonga, with an acreage of 142,600 square miles, say 91 million acres, and a population of 13 millions.

The tenure of the eight provinces was as follows :—

	Acres	Value, £	Average Farm, Acres
1,770,000 peasant families . .	49,740,000	158,300,000	28
24,740 nobles . . .	25,100,000	59,200,000	1,020
10,870 citizens, &c.	4,070,000	8,900,000	370
Crown-lands, &c. . .	12,090,000	...	...
Total . .	91,000,000	226,400,000	430

The aggregate value of 78 million acres was 226½ millions sterling, a fraction under £3 per acre ; the average was 45s. for lands held by citizens, 48s. for that of nobles, and 64s. an acre for what is held by peasants.

The proportions of land under crops in the estates of nobles and peasants were (1879) :—

| Owners | Acres | | | Percentage under Crops |
	Under Crops	Pasture and Forest	Total	
Peasants . .	38,400,000	11,040,000	49,440,000	77
Nobles and citizens }	21,200,000	7,970,000	29,170,000	73
Total .	59,600,000	19,010,000	78,610,000	75

In the said eight provinces no less than 96 per cent. of the land held by peasants was in communes or villages. There were 26,456 villages, with 1,893,000 houses and 1,713,000 families, averaging 72 houses per village, with 447 inhabitants, the aggregate population being 11,840,000, of which 5,830,000 were males ; the communal lands being

valued at 154 millions sterling, and covering an area of 47,800,000 acres, and the houses valued at £18,000,000, say £11 each. There were also 57,000 peasant proprietors, holding in their own right an aggregate area of 1,930,000 acres, an average of 35 acres each, valued at £4,300,000. Strebinsky also found that agriculture prevailed most where the population per square mile was highest, viz. :—

Section	Area, Square Miles	Population per Square Mile	Area under Crops, Acres	Cultivated Ratio
				Per Cent.
First . . .	54,000	112	27,600,000	80
Second . .	65,000	81	26,900,000	65
Third . . .	23,000	63	5,100,000	35
Total .	142,000	90	59,600,000	67

In 1878, according to Strebinsky, the tenure of all descriptions of land was as follows :—

| | Millions of Acres | | | | Ratio | | | |
	Arable	Pasture and Waste	Forest	Total	Arable	Pasture and Waste	Forest	Total
Crown	5	94	180	279	1.5	21.8	37.1	22.4
Peasants	115	50	21	186	35.2	11.6	4.3	15.0
Nobles, &c.	206	289	284	779	63.3	66.6	58.6	62.6
Total . . .	326	433	485	1,244	100.0	100.0	100.0	100.0

The character of the land in possession of the three classes appears in the following table :—

	Crown	Peasants	Nobles,&c.	Total
Arable . .	1.7	61.5	26.4	26.3
Pasture, &c.	33.6	36.8	37.1	35.0
Forest . .	64.7	11.7	36.5	38.7
Total .	100.0	100.0	100.0	100.0

Of the area comprised under the item "pasture and waste" 201 million acres are considered worthless.

AUSTRIA

Down to 1849 the tenure of land was similar to that in Russia, the nobles of Bohemia and Hungary holding vast estates, with sometimes as many as 10,000 serfs. Each serf had to work two days a week for his master, besides giving him 11 per cent. of all products in lieu of rent. In 1819 the number of serfs was 7,000,000, of whom 1,427,000 were male adults. In 1832 the Bohemian nobles resident at Vienna possessed lands valued at 45 millions sterling.

The largest estates in Austria proper are the following:—

Of	Acres
Prince Schwarzenburg	510,000
Prince Lichtenstein	460,000
Archduke Albert	305,000

There are in Bohemia 63 nobles holding estates, none of which is less than 12,000 acres. The Grand-Duchy of Austria counts 292 nobles and squires holding between them 2,900,000 acres. The proportions of land still held by this class in 1888 were :—

In	Acres	Of which under Forest
Bohemia . . .	4,300,000	2,800,000
Duchy of Austria . .	1,600,000	1,100,000
Styria	1,100,000	900,000
Galitzia . . .	7,500,000	4,200,000
Tyrol	700,000	600,000
Moravia . . .	2,100,000	1,200,000
Other provinces .	3,300,000	2,500,000

The emancipation law of 1849 changed the ownership of one-half the Empire. According to an official return in 1869, the peasant properties in Austria proper covered 25 million acres, in farms averaging 17 acres, viz. :—

Province	Peasant Properties	Area of Same, Acres	Average Estate, Acres	Total Area of Province, Acres	Ratio held by Peasants, per Cent.
Gd.-Duchy } of Austria }	189,000	3,020,000	16	7,700,000	40
Styria . .	134,000	1,240,000	9	5,600,000	22
Bohemia .	199,000	5,470,000	27	12,800,000	43
Galitzia . .	496,000	8,440,000	17	19,200,000	44
Tyrol . .	113,000	890,000	8	7,000,000	12
Moravia . .	98,000	2,720,000	28	5,500,000	49
Dalmatia .	47,000	1,450,000	31	5,000,000	29
Other } provinces }	231,000	1,950,000	8	13,200,000	15
Total .	1,507,000	25,180,000	17	76,000,000	33

The tenure of Hungary and Transylvania in 1880 was as follows :—

| Holding Acres | Number of Owners | |
	Hungary	Transylvania
7 to 42	1,815,700	532,900
42 to 280	91,100	27,900
Over 280	16,030	2,650
Total . .	1,922,830	563,450

The whole Empire counts 6,150,000 landowners, viz. :—

Class	Number	Land-Tax
Peasants . . .	4,673,000	Under £4
Farmers . . .	1,259,000	£4 to £20
Gentry . . .	162,200	£20 to £40
Nobles . . .	56,500	Over £40

ITALY

The tenure of land in the whole kingdom is as follows (1870) :—

Province	Number of Farms held by				Average Size of Farms, Acres
	Pro-prietors	Tenants	Metayer	Total	
Piedmont . .	608,000	25,000	81,000	714,000	14
Lombardy . .	160,000	53,000	236,000	449,000	11
Parma and Modena	69,000	17,000	102,000	188,000	15
Tuscany . .	56,000	10,000	227,000	293,000	17
Papal States .	80,000	3,000	573,000	656,000	8
Naples . . .	224,000	194,000	24,000	442,000	42
Sicily . . .	52,000	8,000	5,000	65,000	90
Island of Sardinia . .	16,000	...	...	16,000	360
Total .	1,265,000	310,000	1,248,000	2,823,000	25

The total is made up thus :—

Class	Number	Farms, Acres	Average, Acres
Proprietors . .	1,265,000	33,000,000	26
Metayers . . .	1,248,000	18,000,000	15
Tenants . . .	310,000	20,000,000	66
Total . .	2,823,000	71,000,000	25

The various quality and value of the land in different parts of Italy are shown in the following official table of 1882 :—

Province	Area, Acres	Rental Value, Shillings per Acre	Price per Acre, £	Value, Millions £
Sardinia . .	9,840,000	15	26.1	260
Lombardy .	4,800,000	22	37.4	180
Parma . .	1,280,000	13	22.1	28
Modena . .	1,580,000	15	25.2	39
Papal States	10,840,000	7	11.0	117
Tuscany . .	5,020,000	10	18.3	92
Naples . .	18,740,000	11	19.0	356
Sicily . . .	6,170,000	11	18.8	116
Total .	58,270,000	13	22.1	1,188

SWITZERLAND

The land rental in 1880 was 191 million francs, or £7,600,000 sterling per annum. This would indicate a selling value of 228 millions sterling, or nearly double my estimate at page 37, which was evidently too low.

SPAIN

The report of the Cortes in 1808 was as follows :—

Estates of	Acres
Crown, churches, and hospitals . .	10,000,000
Nobles and grandees	30,500,000
Citizens and peasants	19,500,000
Mountain and waste	60,900,000
Total . . .	120,900,000

The *Registro Catastral* for 1877 gives the total number of landowners (exclusive of urban house-owners) as 596,000, whose estates covered 65 million acres, averaging 110 acres each. There were but 3900 whose rent-roll reached £400 a year.

PORTUGAL

The kingdom comprises 559,000 farms by official report, viz. :—

Class	Number	Area, Acres	Average Farm, Acres
Nobles . .	62,000	12,450,000	200
Proprietors . .	357,000	5,950,000	17
Tenants . .	140,000	2,800,000	20
Total .	559,000	21,200,000	38

SWEDEN

In 1810 the kingdom was held by 1200 noblemen, who owned 65,300 farms let to tenants ; each farm covered a quarter of a "mantal," or 400 acres. Between 1818 and 1840 the peasants bought from the nobles 16 million acres, at an average price of 1s. 5d. per acre. In 1876 the tenure was as follows :—

	Number	Millions of Acres			Average Farm, Acres
		Cultivated	Forest, &c.	Total	
Landowners	194,000	10	60	70	360
Tenants . .	40,000	2	14	16	400
Crown . .	...	...	9	9	...
Total .	234,000	12	83	95	370

Each farm averages 18 acres under crops, 32 meadow, and the remainder forest or waste. The uncultivated portion of the kingdom, as shown above, covers 83 million acres, of which (according to Government Report of 1885) the forests comprise 45 million acres, the remaining 38 millions being mountain waste. The landowners comprise two classes, viz. :—

Class	No.	Area, Acres	Average Area
Nobles . . .	2,650	38,000,000	14,000
Freeholders . .	191,000	48,000,000	250

The latter class includes 10,000 forest-owners, devoted to felling timber.

NORWAY

The number of farms in 1870 was 110,000, of which 75,000 were cultivated by their owners, 35,000 by tenants. An ordinary farm of 300 acres may be rented at £50 a year, or purchased for £1000 sterling, comprising about 30 acres cultivated, 180 of forest, and 90 acres pasture.

DENMARK

In 1801 the kingdom belonged to 614 nobles, who possessed until 1788 the right to buy and sell the tenantry the same as cattle. In 1840 the tenants had bought from the landlords 3,500,000 acres, that is, half the kingdom, at prices averaging £6 per acre, representing a gross value of 21 millions sterling.

The tenure of land in 1870 was as follows :—

	Number	Acres	Average Farm, Acres
Nobles . .	550	1,380,000	2,500
Freeholders .	70,300	4,560,000	5
Huusmen .	137,000	570,000	4
Total .	207,850	6,510,000	32

HOLLAND

There are 100,000 farms, of about 80 acres each, cultivated by their owners. The province of Grœningen has some tenant-farmers called *meejers*. The landlord can never raise the rent nor disturb the tenant.

BELGIUM

Excluding holdings of less than 2½ acres, the tenure of land has been :—

Acres	Number of Holdings			Holdings in 1880		
	1846	1866	1880	Cultivated by Owners	By Tenants	Total
2½–12	166,000	220,000	226,000	152,000	74,000	226,000
12–50	69,000	82,000	74,000	51,000	23,000	74,000
Over 50	19,000	22,000	15,000	8,000	7,000	15,000
Total . .	254,000	324,000	315,000	211,000	104,000	315,000

In 1866, according to Consul Grattan's report, only 34 per cent. of the land was cultivated by proprietors; in 1880, by the official returns, the proportion was 60 per cent.

GREECE

In 1836 the State sold farm-lots of 30 acres each to a large number of agricultural families at 47s. per acre, say £70 per farm. In 1862 there were 147,500 peasant proprietors, who held 5,600,000 acres, an average of 38 acres, one-third being under crops; also 16,100 landed gentry with large farms, who usually let their lands to tenants at 22s. per acre. The area of the kingdom was as follows :—

	Acres
Under crops	1,920,000
Capable of cultivation . . .	3,700,000
Woods	1,440,000
Mountain and pasture . . .	4,700,000
Total . . .	11,760,000

ALGERIA

The land grants ceded to settlers were :—

	Acres
1840–70	2,110,000
1871–80	1,120,000
Total . .	3,230,000

The tenure is described at p. 40. Only 4 per cent. of the landed area is held by European settlers, the Arabs holding 52 per cent. in farms of 100 acres per family, and the remainder (44 per cent.) being under forest or Crown-lands.

UNITED STATES

The area of the United States and the portion under cultivation appear as follows :—

Date	Total Area, Millions of Acres	Under Farms, Millions Acres	Improved, Million Acres	Ratio under Farms, per Cent.	Ratio of Improved, per Cent.
1776	269	80	30	30	11
1810	1,018	164	64	16	6
1850	1,902	293	113	16	6
1860	2,291	407	163	18	7
1870	2,291	410	190	18	8
1880	2,291	534	285	23	12
1888	2,291	...	356	...	15

The above are official returns except for 1888 (see fourth paragraph on p. 43, *Agriculture*), and estimate of farms in 1776 based on Census of 1790.

Sales of public lands in United States were as follows :—

Period	Acres	Amount Received, £	Annual Average Acres Sold
1787–1810 . . .	4,700,000	1,800,000	200,000
1811–20 . . .	15,300,000	8,600,000	1,530,000
1821–30 . . .	10,100,000	2,800,000	1,010,000
1831–40 . . .	62,300,000	14,100,000	6,230,000
1841–60 . . .	68,500,000	12,700,000	3,430,000
1861–80 . . .	94,100,000	9,500,000	4,710,000
Total . .	255,000,000	49,500,000	2,700,000
1881–88 . . .	99,400,000	...	12,400,000
Grand total .	354,400,000	...	3,500,000

The sales of lands during ten years ending 1889 showed thus :—

	Acres		Acres
Dakota . . .	41,300,000	Minnesota . .	9,000,000
Kansas . . .	23,200,000	Florida . . .	7,300,000
Nebraska . .	21,000,000	Montana . . .	6,700,000
Washington .	12,900,000	Louisiana . . .	4,300,000
California . .	11,400,000	Various . . .	39,500,000
Colorado . .	10,900,000	Total .	187,500,000

The disposal of public lands in 102 years was approximately as follows :—

	Millions of Acres		
	1787-1860	1861–1888	Total
Sold	154	68	222
School grants . .	68	9	77
Railway grants . .	26	166	192
Military grants .	44	18	62
Homestead grants	...	125	125
Sundry grants .	45	18	63
Total . .	337	404	741

In this last table Homestead grants are distinguished, but in the preceding one they are included among lands sold. In eight years ending 1887 the lands taken up by settlers comprised 124 million acres of Government lands and 18 millions belonging to railway companies, in all averaging 18 million acres yearly, say 120,000 farms of 150 acres each. The Homestead Law of 1862 has had a powerful influence in promoting agriculture, the area of improved lands being now apparently 356 million acres against 163 millions in 1860, an increase of 118 per cent., the area newly improved each year averaging 7,100,000 acres. By this law any immigrant family can obtain a farm-lot of 160 acres, on condition of five years occupation, without other cost than £3 for the title-deeds. From 1862 to 1886 no fewer than 690,000 families received farm-lots of this kind, covering 111 million acres, or one-fifth of the total area under farms.

According to the agricultural product of 1886 for the Union, the average for these Homestead farms would be products of an annual value of 155 millions sterling, or £220 per family, and the farms would represent a capital value of 816 millions sterling, or nearly £1200 per farm. Compared with the total earnings of the nation, these

Homestead farmers appear to earn almost 8 per cent., and the value of their farms and stock stands for 7 per cent. of the aggregate wealth of the United States.

The number and area of farms in the great divisions of the country, according to Census reports, were as follows :—

States				Number of Farms				Millions of Acres			
				1850	1860	1870	1880	1850	1860	1870	1880
New England	.	.	.	167,000	185,000	182,000	207,000	18	20	21	22
Middle	.	.	.	351,000	413,000	456,000	539,000	43	47	49	53
Southern	.	.	.	488,000	640,000	849,000	1,481,000	165	220	185	227
Western	.	.	.	444,000	716,000	1,167,000	1,778,000	67	120	155	232
Total	.	.		1,450,000	1,954,000	2,654,000	4,005,000	293	407	410	534

The proportion of farms over 100 acres is increasing :—

Acres					Number of Farms			Ratio		
					1860	1870	1880	1860	1870	1880
Under 20	.	.	.	.	306,000	467,000	390,000	15.0	17.6	9.8
20–50	.	.	.	.	617,000	848,000	781,000	30.1	32.0	19.5
50–100	.	.	.	.	609,000	754,000	1,033,000	29.8	28.4	25.7
100–500	.	.	.	.	487,000	565,000	1,696,000	23.9	21.3	42.4
Over 500	.	.	.	.	25,000	20,000	105,000	1.2	0.7	2.6
Total	.	.			2,844,000	2,654,000	4,005,000	100.0	100.0	100.0

The size of farms in the Union is, however, diminishing, as appears from the following Census reports, viz. :—

Census				Number of Farms	Area, Acres	Average Acres per Farm
1850	.	.	.	1,450,000	293,000,000	202
1860	.	.	.	2,044,000	407,000,000	200
1870	.	.	.	2,654,000	410,000,000	154
1880	.	.	.	4,005,000	534,000,000	134

It may be noted that farms over 100 acres constituted only 22 per cent. of the total in 1870, and rose to 45 per cent. in 1880.

Although most of the farms are cultivated by the owners, the three forms of tenure known in France and Italy exist in the United States, namely, owners, tenants, and "metayers," the last-mentioned giving the landlord half or other portion of the crops in lieu of rent.

The Census of 1880 showed as follows :—

Farms Held by	New England	Middle States	Southern	Western	Total
Proprietors	190,000	510,000	690,000	1,594,000	2,984,000
Tenants	10,000	56,000	141,000	115,000	322,000
Metayers	7,000	88,000	306,000	302,000	703,000
Total	207,000	654,000	1,137,000	2,011,000	4,009,000

The proportion of these holdings is shown as follows :—

Held by	New England	Middle States	Southern	Western	Total
Proprietors	91.8	78.0	60.6	79.2	74.5
Tenants	4.8	8.5	12.4	5.7	8.0
Metayers	3.4	13.5	27.0	15.1	17.5
Total	100.0	100.0	100.0	100.0	100.0

It will be observed that the metayer or share system is

twice as common as that of tenants paying rent in money. The above table refers merely to the number of farms.

The classification according to size of farms in 1880 was :—

Acres	Number of Farms held by			Total
	Owner	Tenant	Metayer	
Under 10	.	88,000	24,000	27,000	139,000
10–50	.	.	583,000	138,000	314,000	1,035,000
50–100	.	.	805,000	70,000	159,000	1,034,000
100–500	.	.	1,416,000	85,000	196,000	1,697,000
Over 500	.	.	92,000	5,000	7,000	104,000
Total	.	2,984,000	322,000	703,000	4,009,000

The value of land per acre is highest in New Jersey, the Agricultural Report for 1888 showing the following table of averages :—

State			Dollars per Acre	State				Dollars per Acre
New Jersey	.	.	65	Vermont	.	.	.	36
Massachusetts	.	.	50	Maryland	.	.	.	32
Ohio	.	.	46	Illinois	.	.	.	32
New York	.	.	44	Wisconsin	.	.	.	23

In some of the Western States it is less than five dollars or £1 sterling per acre.

The following table shows the areas of lands improved and unimproved, the number of hands engaged in agriculture, and the value of the farms :—

States			Millions of Acres							
			Improved				Unimproved			
			1850	1860	1870	1880	1850	1860	1870	1880
New England	.	.	11	12	12	13	7	8	8	8
Middle	.	.	.	26	30	33	37	16	16	16	15
Southern	.	.	.	49	65	58	82	117	155	126	147
Western	.	.	.	27	56	87	153	40	65	70	79
Total	.	.	113	163	190	285	180	244	220	249

States	Hands Employed			Value of Farms, Millions £			
	1860	1870	1880	1850	1860	1870	1880
New England . . .	293,000	316,000	301,000	77	99	107	121
Middle	721,000	793,000	847,000	248	380	508	506
Southern	860,000	2,669,000	3,626,000	198	445	253	347
Western	1,346,000	2,144,000	2,896,000	158	458	818	1,148
Total . .	3,220,000	5,922,000	7,670,000	681	1,382	1,686	2,122

In the above table of "hands employed" are omitted for 1860 the able-bodied slaves of the Southern States. Assuming that one-half of such slaves were engaged in agriculture (say 1,122,000), the number of persons so employed in 1860 would be 4,342,000 for the whole Union, and 1,982,000 for the Southern States. The value of farms (without live-stock, crops, or implements) was as follows to the number of hands engaged in agriculture :—

							Per Head
1860	.	.	.	.	.	.	£318
1870	.	.	.	.	.	.	286
1880	.	.	.	;	.	.	276

The ratio of improved acres to the number of hands engaged was :—

States	Acres Improved per Head		
	1860	1870	1880
New England . .	41	38	43
Middle . . .	41	41	43
Southern . . .	33	22	23
Western . . .	42	41	53
Average . .	36	32	39

It appears that agricultural skill has made most progress in the Western States, where three men in 1880 cultivated as much land as four in 1870.

CANADA

At the beginning of the present century agriculture was in the hands of the old French "*habitans*," who had a chain of farms 400 miles long on the banks of the St. Lawrence. These farms comprised, besides pastures, about 500,000 acres under crops, the quantity of grain produced being over 5 million bushels. According to a statement published in 1830, the average annual export of wheat to England since 1805 had been a trifle over one million bushels. Free grants of 200-acre farms were given by the British Government to military and other settlers down to 1826, on condition of building a hut and barn (cost £72) and getting four acres under crops. In 1826 these land grants were abolished, and farm lots were sold by auction at prices payable in four annual instalments without interest, the average for backwood lands being 5s. an acre.

A rush of settlers ensued. In 1834 the area covered by farms in the colony was 12,640,000 acres, of which 4,910,000 were cultivated. In 1842 Upper Canada, now called Ontario, counted 100,000 agricultural families, who had under tillage an area of 1,928,000 acres, and in 1852 there were 190,000 families, with 3,698,000 acres under plough. The grain crop of Ontario and Quebec in 1852 exceeded 45 million bushels.

In 1870 the Government of Canada passed a Homestead Law similar to that of the United States, granting farm lots of 200 acres to each head of a family and 100 to each male adult free, on condition of building a log-hut not less than 16 × 20 feet, cultivating 15 acres in every 100, and residing six months in each year during five years on the farm : these grants to be limited to Manitoba. In all other parts of Canada public lands cost about 4s. an acre. The usual cost of felling timber to clear the land is £3 an acre.

In 1874 Canada proper, that is, Ontario and Quebec, had 368,000 farms covering an area of 34 million acres, the Government having still 167 million acres of public lands undisposed of. The tenure of the said farms was as follows :—

Acres	Number of Farms	Area, Acres
Under 10	40,300	250,000
10-100	220,700	12,000,000
Over 100	107,400	22,000,000
Total . .	368,400	34,250,000

Of the above farms, 322,400 were cultivated by their owners, and 44,000 by tenants. The average size of each farm was 93 acres. The returns for 1881 showed 588,970 farms, against 57,890 in 1831 ; the area under farms in 1881 was 67,650,000 acres, that is, an average of 115 acres, against 134 in the United States. The increase of grain from 1874 to 1886 was 102 per cent.; of cattle, 35 per cent.

AUSTRALIA

Farming land first came into use near Sydney about 1790. It was not until 1813 that two farmers crossed the Blue Mountains, from which time squatters began to settle on Government lands. Some obtained free grants, others a squatter's privilege for lots of 6400 acres at a nominal rent of £10 a year. In 1831 free grants were abolished, the British Government fixing the price at 5s. an acre, which was raised to 12s. in 1838, and to 20s. in 1842. Between 1831 and 1842 the Government sold two million acres, the half of the money so obtained being given as a bonus to shipowners to bring out settlers from England. In 1850 Mr. Palmer wrote, "There are men who landed here without a guinea who have farms of 20,000 acres or more, stocked with 4000 cattle or 40,000 sheep."

In 1887 the lands sold and those unalienated in the seven colonies were :—

Colony	Millions of Acres			Percentage of Lands Sold
	Sold	Undisposed of	Total Area	
New South Wales .	42	154	196	21
Victoria	15	42	57	26
South Australia .	9	234	243	4
Western Australia .	2	676	678	...
Queensland . . .	9	419	428	2
Tasmania . . .	5	11	16	30
New Zealand . .	19	48	67	29
Total . .	101	1,584	1,685	6

The sales in the several colonies were as follows :—

	Acres, Freehold			Price, £	Shillings per Acre
	1831–75	1876–87	Total		
New South Wales . . .	13,600,000	28,500,000	42,100,000	42,000,000	·20
Victoria	10,400,000	4,800,000	15,200,000	23,300,000	31
South Australia . . .	5,600,000	3,800,000	9,400,000	10,000,000	23
Western Australia . . .	1,500,000	400,000	1,900,000	1,000,000	10
Queensland	1,800,000	7,200,000	9,000,000	5,800,000	13
Tasmania	4,000,000	600,000	4,600,000	4,000,000	18
New Zealand	13,600,000	5,300,000	18,900,000	12,000,000	12
Total . .	50,500,000	50,600,000	101,100,000	98,100,000	19

The sums received for lands in New South Wales, South Australia, Western Australia, Tasmania, and New Zealand are not known precisely. The above are estimates based on the ordinary prices.

The number of landowners and of squatters in 1880, and the lands held by them, were as follows :—

	Number of		Acres		Acres to Average Farm	
	Landowners	Squatters	Freehold	Sheep Runs	Freehold	Sheep Run
New South Wales . .	39,900	4,330	25,500,000	133,200,000	634	30,700
Victoria	49,600	612	14,800,000	14,300,000	321	23,300
South Australia . .	31,000	1,472	9,200,000	115,000,000	296	78,000
Western Australia . .	1,800	4,500	1,700,000	24,000,000	950	5,300
Queensland . . .	9,500	6,600	4,600,000	239,000,000	478	36,000
Tasmania . . .	12,000	500	4,200,000	1,800,000	353	3,500
New Zealand . . .	24,100	997	4,100,000	12,100,000	167	12,050
Total . .	167,900	19,011	64,100,000	539,400,000	384	28,300

The average freehold farm in 1880 was 384 acres, against 93 in Canada and 134 in the United States. The area of freehold farms in 1887, as shown in preceding table, was 101 million acres.

The sales of land were as follows :—

Period	Acres Sold	Acres per Annum
1831–42 .	2,100,000	200,000
1843–75 .	48,400,000	1,450,000
1876–87 .	50,600,000	4,220,000

The number of freehold landowners in 1880 was equal to 5 per cent. of the population, against 8 per cent. in the United States and 9 per cent. in Canada.

CAPE COLONY

When this colony was taken from the Dutch in 1806, it comprised 10,000 families, mostly following pastoral pursuits. In 1826 a small Scotch colony was sent out by the British Government.

The area is 212,000 square miles, or 135 million acres, viz. :—

	Acres	Per Annum
Sold from 1806 to 1875 .	67,400,000	960,000
„ „ 1876 to 1887 .	22,200,000	1,850,000
Still unsold . .	45,400,000	...
Total .	135,000,000	...

The nominal price was 1s. per acre, but the amount received has not averaged more than 6d. Sheep farms vary from 3000 to 10,000 acres, being much smaller than in Australia or the Argentine Republic. The number of farms is unknown, probably about 40,000, averaging 2200 acres each.

INDIA

The tenure of land is as follows :—

	Number	Annual Payment to Government, £
Nobles . .	130,000	13,000,000
Farmers . .	724,000	7,300,000
Ryots . .	9,750,000	970,000
Total .	10,604,000	21,270,000

OTHER COLONIAL CROWN-LANDS

Ceylon.—This island has an area of 16 million acres. The Government has sold down to December 1887 only 1,150,000, the public lands still undisposed of reaching 12,040,000 acres. Usual price, 30s. per acre. The estates of English settlers, mostly under coffee, chinchona, and tea, cover 300,000 acres, and were valued in 1880 at 9 millions sterling.

Natal.—This colony has an area of 12,100,000 acres, having been separated from Cape Colony in 1856 :—

	Acres	Per Annum
Lands sold from 1856 to 1875	8,000,000	400,000
Lands sold from 1876 to 1887	300,000	25,000
Lands still undisposed of . .	3,800,000	...
Total . .	12,100,000	...

The usual price is 3s. per acre. The Kaffirs own nine-tenths of the total area.

Jamaica.—This island has an area of 2,600,000 acres, which have been sold to planters at prices varying from 4s. to 20s. per acre. The Government has still 100,000 acres unsold.

Trinidad.—Area 1,100,000 acres. It was taken from the Spaniards in 1797, but two-thirds of the island are still in the hands of the British Government.

Sales of Crown-lands show :—

	Acres	Per Annum
Sold from 1797 to 1875 . .	290,000	3,500
Sold from 1876 to 1887 . .	90,000	8,000
Still undisposed of	740,000	...
Total	1,120,000	...

The average price is 25s. per acre. The farms are mostly under cocoa and sugar.

ARGENTINA

The tenure and value of land vary exceedingly. In such provinces as Buenos Ayres and Santa Fé, where great numbers of the inhabitants are landowners, and the

soil is subdivided, the prices are high; while in other provinces, where a few families possess great tracts of land, the value is low. The following table is taken from the *River Plate Handbook* (1885) :—

	Acres			Value per Square Mile (640 Acres)	
	Pasture	Tillage	Total	Pasture, £	Tillage, £
Buenos Ayres	53,800,000	2,300,000	56,100,000	600	3,000
Santa Fè	20,100,000	1,500,000	21,600,000	300	1,200
Cordoba	44,000,000	200,000	44,200,000	150	1,000
San Luis	25,600,000	100,000	25,700,000	100	1,000
Mendoza	32,000,000	500,000	32,500,000	80	2,000
San Juan	28,800,000	300,000	29,100,000	80	1,500
Salta	30,700,000	200,000	30,900,000	50	1,000
Tucuman	10,200,000	200,000	10,400,000	150	4,000
Jujuy	14,100,000	100,000	14,200,000	50	1,000
Rioja	22,400,000	100,000	22,500,000	50	1,000
Catamarca	49,600,000	100,000	49,700,000	50	1,000
Santiago	22,300,000	100,000	22,400,000	50	1,000
Entre Rios	23,000,000	200,000	23,200,000	300	1,200
Corrientes.	25,600,000	100,000	25,700,000	200	1,000
Total . .	402,200,000	6,000,000	408,200,000	130	1,800

The above refers merely to the inhabited portion of the Republic, besides which there are the following territories, for the most part public lands, with a scanty population, viz. :—

	Acres
Gran Chaco	102,400,000
Misiones	6,400,000
Pampas	96,000,000
Patagonia	192,000,000
Total . .	396,800,000

The unsettled portion covers nearly as much area as that which is inhabited; the total is 805 million acres, or one-third of the extent of the United States.

The number of landowners is about 100,000, mostly Argentines. There are in Buenos Ayres 4000 Irish and Scotch sheep-farmers, whose land and stock in 1882 was worth 33 millions sterling.

In Santa Fè 16,000 grain-growers, Italians, Swiss, French, and Germans, possess farms worth 12 millions sterling. There are also 10,000 grain-growers, mostly Italians, in the province of Buenos Ayres. At least 70,000 Argentines have sheep and cattle farms in Buenos Ayres and the upper provinces. Land usually carries 2000 sheep and 100 cattle to the square mile.

LAND-TAXES

The total burthens on agriculture in various countries, by latest accounts, were approximately as follows :—

	Taxes, £	Agricultural Product, £	Tax, Percentage
England . . .	16,200,000	157,000,000	10.3
Scotland . . .	1,900,000	40,000,000	4.8
Ireland	2,700,000	54,000,000	5.0
United Kingdom	20,800,000	251,000,000	8.3
France	21,800,000	460,000,000	4.8
Germany . . .	12,700,000	424,000,000	3.0
Austria proper .	8,600,000	175,000,000	4.9
Italy	14,200,000	204,000,000	7.0
Belgium . . .	1,530,000	55,000,000	2.8
Holland	1,080,000	39,000,000	2.8
Egypt	4,890,090	35,000,000	14.0
India	23,400,000	400,000,000	5.8
Total . .	109,000,000	2,043,000,000	5.4

UNITED KINGDOM

The taxes on agrarian industry in the United Kingdom may be set down approximately thus :—

	England	Scotland	Ireland	United Kingdom
	£	£	£	£
Tithes . . .	4,050,000	...	...	4,050,000
Rates . .	8,300,000	1,400,000	2,100,000	11,800,000
Income-tax .	1,200,000	200,000	250,000	1,650,000
Land-tax .	1,050,000	50,000	...	1,100,000
Duties and stamps	1,600,000	250,000	350,000	2,200,000
Total .	16,200,000	1,900,000	2,700,000	20,800,000

FRANCE

Councillor Tisserand enumerates the agrarian taxes as follows :—

	£
National	4,800,000
Departmental . . .	4,800,000
Indirect	8,600,000
Roads, &c.	3,600,000
Total . .	21,800,000

Mr. Yves Guyot published the following table of rental and land-tax down to 1874 :—

Year	Land Rental, £	Land-Tax, £	Per Cent.
1791 . .	57,600,000	9,600,000	17
1821 . .	63,200,000	6,200,000	10
1862 . .	124,000,000	6,400,000	5
1874 . .	158,000,000	6,700,000	4

The ratios of properties according to tax assessment were :—

Taxes	1835	1858
Under 5 francs . . .	47.8	51.0
5–10 ,, . . .	16.1	15.4
10–20 ,, . . .	13.9	13.3
20–50 ,, . . .	13.1	12.1
Over 50 ,, . . .	9.1	8.2
Total . .	100.0	100.0

Those under five francs may be considered pauper holdings, being mostly exempted from tax on the plea of extreme poverty.

AUSTRIA

In Austria (without Hungary) the agricultural taxes in 1882 were :—

	£
Land-tax	2,600,000
Local rates	2,400,000
Stamp-duties, &c. . . .	3,600,000
Total . .	8,600,000

GERMANY

Professor Meitzen shows that the taxes on agriculture are as follows :—

Taxes	Per Cent. on Rental Valuation	Per Cent. on Real Rental
State . . .	17.4	7.0
Communal . .	17.1	6.8
Special . . .	9.3	3.7
Total .	43.8	17.5

ITALY

The taxes levied on landed property in 1883 were as follows :—

	£
National	5,020,000
Provincial	2,060,000
Communal	3,130,000
Total . .	10,210,000

Farmers have also to pay a cattle-tax, legacy-duty, and other imposts, thus bringing up the total, as Professor Sbrojavacca shows, to £14,240,000 per annum. The land-tax proper was in 1882 as follows :—

	£	Pence per Acre	Percentage of Land Product
Sardinia . .	820,000	20	11
Lombardy . .	960,000	48	18
Parma . .	150,000	28	18
Modena .	145,000	22	13
Papal States .	480,000	22	14
Tuscany . .	230,000	11	9
Naples . .	1,420,000	18	13
Sicily . . .	360,000	14	11
Total .	4,565,000	20	13

HOLLAND

In 1884 the agrarian imposts were :—

	£
Land-tax	560,000
Local rates	140,000
Stamp-duties, &c. . . .	380,000
Total .	1,080,000

BELGIUM

According to Professor Leemans the agricultural taxes in 1884 were :—

	£
Land-tax	790,000
Indirect taxes . . .	560,000
Roads, &c.	180,000
Total .	1,530,000

EGYPT

The land-tax in 1833 was £1,120,000, and had risen in 1889 to £4,890,000 sterling.

CHINA

In 1889 the land-tax was £4,800,000.

LANGUAGE

The numbers of persons speaking the various languages in 1801 and in 1890 were as follows :—

	1801	1890	Ratio 1801	Ratio 1890
English . .	20,520,000	111,100,000	12.7	27.7
French . .	31,450,000	51,200,000	19.4	12.7
German . .	30,320,000	75,200,000	18.7	18.7
Russian . .	30,770,000	75,000,000	19.0	18.7
Spanish . .	26,190,000	42,800,000	16.2	10.7
Italian . .	15,070,000	33,400,000	9.3	8.3
Portuguese .	7,480,000	13,000,000	4.7	3.2
Total .	161,800,000	401,700,000	100.0	100.0

It will be observed what a wonderful advance the English language has made in ninety years. The following table shows in detail the distribution of the various principal languages in 1801 and in 1890. In the United States many speak both English and German.

SPOKEN IN 1801

In	English	French	Italian	Spanish	German
Europe	14,540,000	30,155,000	14,840,000	10,265,000	30,005,000
United States	5,250,000	230,000	5,000	5,000	280,000
Other parts	730,000	1,065,000	225,000	15,920,000	35,000
Total	20,520,000	31,450,000	15,070,000	26,190,000	30,320,000

SPOKEN IN 1890

In	English	French	Italian	Spanish	German
Europe	38,600,000	45,200,000	31,100,000	17,300,000	67,600,000
United States	58,000,000	1,100,000	400,000	650,000	7,100,000
Other parts	14,500,000	4,900,000	1,900,000	24,850,000	500,000
Total	111,100,000	51,200,000	33,400,000	42,800,000	75,200,000

The number of persons speaking Gaelic in the United Kingdom is said to reach nearly 4 per cent. of the population, including 660,000 in Ireland, 350,000 in Wales, and 230,000 in Scotland.

The proportion of letters in the various languages in prose works is found to be as follows :—

	English	French	Italian	Spanish	Latin	German
A	78	80	99	121	79	64
B	23	8	2	11	14	20
C	25	30	40	48	42	22
D	39	35	42	55	29	71
E	138	184	131	145	92	178
F	18	8	12	6	13	14
G	19	12	20	11	22	31
H	46	2	11	20	2	40
I	68	76	103	37	120	86
J	2	2	4	8	4	6
K	6	...	...	...	...	9
L	47	47	71	61	29	29
M	19	37	12	26	62	22
N	78	73	71	55	44	110
O	70	41	96	107	50	27
P	21	33	28	24	32	11
Q	3	8	9	15	11	...
R	59	73	52	69	77	84
S	64	99	74	69	79	55
T	88	70	55	48	66	48
U	37	58	47	46	106	40
V	10	17	15	10	18	9
W	19	...	...	...	...	20
X	1	5	...	...	9	...
Y	22	2	...	5	...	...
Z	...	...	6	3	...	4
Total .	1,000	1,000	1,000	1,000	1,000	1,000

Where blanks occur, it shows either that the letter is not used, or that the use does not reach 1 in 1000, such as "z" in English or "x" in Spanish. The Spanish N, of which 55 are used, includes three "ñ," equivalent to "gn" in Italian.

LATITUDE AND LONGITUDE

					Latitude	Longitude
Algiers	.	.	.	.	36.46 N.	3.6 E.
Amsterdam	.	.	.	.	51.21 ,,	4.58 ,,
Antwerp	.	.	.	.	51.13 ,,	4.25 ,,
Archangel	.			.	65.40 ,,	43.0 ,,
Azores	.	.	.	.	28.0 ,,	26.0 W.
Bagdad	.	.	.	.	33.20 ,,	44.24 E.
Baltimore	.	.	.	.	39.15 ,,	76.30 W.
Belfast	.	.	.	.	54.36 ,,	5.55 ,,
Berlin	.	.	.	.	52.33 ,,	13.25 E.
Bombay	.	.	.	.	19.2 ,,	72.50 ,,
Bordeaux	.	.	.	.	45.0 ,,	0.20 W.
Boston	.	.	.	.	42.20 ,,	71.9 ,,
Brussels	.	.	.	.	50.52 ,,	3.21 E.
Bucharest	.	.	.	.	44.28 ,,	26.9 ,,
Buda-Pesth	.	.	.	.	47.31 ,,	19.1 ,,
Buenos Ayres	.	.	.	.	34.36 S.	58.22 W.
Cadiz	.	.	.	.	36.32 N.	6.18 ,,
Cairo	.	.	.	.	30.5 ,,	31.45 E.
Calcutta	.	.	.	.	22.40 ,,	88.25 ,,
Canton	.	.	.	.	23.10 ,,	113.9 ,,
Cape Town	.	.	.	.	34.30 S.	18.0 ,,
Caracas	.	.	.	.	10.30 N.	67.10 W.
Chicago	.	.	.	.	42.0 ,,	83.31 ,,
Cincinnati	.	.	.	.	39.0 ,,	84.15 ,,
Constantinople	.	.	.	.	41.1 ,,	28.58 E.
Copenhagen	.	.	.	.	55.42 ,,	12.34 ,,
Demerara	.	.	.	.	5.30 ,,	58.20 W.
Dresden	.	.	.	.	51.6 ,,	13.36 E.
Dublin	.	.	.	.	53.21 ,,	6.17 W.
Edinburgh	.	.	.	.	55.57 ,,	3.12 ,,
Falkland Islands	.	.	.	.	51.30 S.	59.0 ,,
Faroe Islands	.	.	.	.	62.0 N.	7.0 ,,
Florence	.	.	.	.	43.45 ,,	11.16 E.
Frankfort	.	.	.	.	50.8 ,,	8.33 ,,
Geneva	.	.	.	.	46.2 ,,	6.9 ,,
Genoa	.	.	.	.	44.30 ,,	9.0 ,,

					Latitude	Longitude
Gibraltar	.	.	.	.	36.8 N.	5.20 W.
Glasgow	.	.	.	.	55.52 ,,	4.8 ,,
Guatemala	.	.	.	.	14.0 ,,	88.0 ,,
Halifax	.	.	.	.	44.30 ,,	63.55 ,,
Hamburg	.	.	.	.	53.34 ,,	10.3 E.
Havanna	.	.	.	.	23.7 ,,	82.28 W.
Hobart	.	.	.	.	42.54 S.	147.27 E.
Jersey	.	.	.	.	49.15 N.	2.5 W.
Jerusalem	.	.	.	.	31.48 ,,	35.10 E.
Lima	.	.	.	.	12.0 S.	77.0 W.
Lisbon	.	.	.	.	38.44 N.	9.6 ,,
Liverpool	.	.	.	.	53.24 ,,	2.58 ,,
London	.	.	.	.	51.31 ,,	0.5 ,,
Madeira	.	.	.	.	33.0 ,,	18.0 ,,
Madras	.	.	.	.	13.12 ,,	80.21 E.
Madrid	.	.	.	.	40.28 ,,	3.40 W.
Malta	.	.	.	.	35.54 ,,	14.27 E.
Manchester	.	.	.	.	53.29 ,,	2.14 W.
Manilla	.	.	.	.	14.35 ,,	120.48 E.
Marseilles	.	.	.	.	43.18 ,,	5.28 ,,
Mauritius	.	.	.	.	20.15 S.	57.0 ,,
Melbourne	.	.	.	.	37.52 ,,	145.0 ,,
Mexico	.	.	.	.	19.30 N.	99.2 W.
Milan	.	.	.	.	45.40 ,,	9.10 E.
Montreal	.	.	.	.	45.30 ,,	73.30 W.
Moscow	.	.	.	.	55.40 ,,	37.28 E.
Munich	.	.	.	.	48.7 ,,	11.35 ,,
Naples	.	.	.	.	40.52 ,,	14.15 ,,
New Orleans	.	.	.	.	30.7 ,,	90.0 W.
New York	.	.	.	.	40.40 ,,	74.0 ,,
Palermo	.	.	.	.	38.6 ,,	13.23 E.
Paris	.	.	.	.	48.52 ,,	2.21 ,,
Pekin	.	.	.	.	40.0 ,,	116.23 ,,
Philadelphia	.	.	.	.	39.52 ,,	77.30 W.
Prague	.	.	.	.	50.5 ,,	14.25 E.
Quebec	.	.	.	.	46.50 ,,	72.0 W.
Quito	.	.	.	.	0.7 S.	78.49 ,,
Rio Janeiro	.	.	.	.	23.0 ,,	43.20 ,,
Rome	.	.	.	.	41.53 N.	12.28 E.
Rotterdam	.	.	.	.	51.55 ,,	4.29 ,,
St. Louis	.	.	.	.	38.40 ,,	90.12 W.
St. Petersburg	.	.	.	.	59.40 ,,	31.0 E.
San Francisco	.	.	.	.	37.59 ,,	121.59 W.
Sierra Leone	.	.	.	.	8.45 ,,	13.10 ,,
Singapore	.	.	.	.	1.27 ,,	103.48 E.
Stockholm	.	.	.	.	59.20 ,,	18.0 ,,
Sydney	.	.	.	.	34.0 S.	151.12 ,,
Teneriffe	.	.	.	.	28.30 N.	17.0 W.
Toronto	.	.	.	.	43.47 ,,	79.25 ,,
Trinidad	.	.	.	.	10.50 ,,	61.15 ,,
Tunis	.	.	.	.	36.44 ,,	10.5 E.
Turin	.	.	.	.	45.5 ,,	7.44 ,,
Valparaiso	.	.	.	.	33.02 S.	71.45 W.
Venice	.	.	.	.	45.27 N.	12.25 E.
Vera Cruz	.	.	.	.	19.30 ,,	96.40 W.
Vienna	.	.	.	.	48.9 ,,	16.24 E.
Warsaw	.	.	.	.	52.15 ,,	21.0 ,,
Washington	.	.	.	.	38.55 ,,	77.5 W.

The length of a degree of longitude varies with latitude as follows :—

Latitude			Miles	Latitude			Miles
10	.	.	68¼	40	.	.	54
15	.	.	67½	45	.	.	50
20	.	.	65¼	50	.	.	45
25	.	.	63¾	60	.	.	35
30	.	.	59½	70	.	.	24
35	.	.	57	80	.	.	12

LAW

The ordinary number of civil lawsuits in a year is as follows :—

			Lawsuits	Per 1000 Inhabitants
England	.	.	1,150,000	42
Scotland	.	.	75,000	20
Germany	.	.	3,239,000	70
Italy	.	.	1,390,000	52
France	.	.	708,000	19
Belgium	.	.	94,000	18

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The Queen's Bench in England in 1887 disposed of 80,000 suits ; the upper courts in Scotland, 11,000. There is an arbitration tribunal between employers and workmen called " Prudhommes," which settles 52,000 cases yearly in France and 4000 in Belgium.

There are 14,000 solicitors or attorneys in England, 17,000 in France, without counting barristers. In 1866 the English law reports comprised 1308 volumes, containing 60,000 law and 28,000 equity cases ; about 30 volumes are added yearly. In 1873 statute law comprised 18,000 statutes. The Russian edicts down to Alexander I. were 31,900 in number.

When Tribonian compiled the Pandects, A.D. 530, he condensed 3,000,000 sentences and 2000 volumes into 150 volumes.

LEAD

The production of metallic lead in tons has been approximately as follows :—

	1830	1850	1880	1888
Great Britain	48,000	55,000	51,000	36,000
France . .	1,100	7,000	32,000	30,000
Germany .	9,500	16,000	58,600	92,000
Italy . . .	8,000	12,000	33,000	30,000
Spain . . .	23,000	27,000	92,300	84,000
Austria . .	7,000	11,000	8,900	10,000
Greece, Belgium, &c.	4,000	6,500	14,400	15,000
Europe . .	100,600	134,500	290,200	297,000
United States	3,700	36,000	89,000	160,000
Total .	104,000	170,500	379,200	457,000

Good lead ore gives 70 per cent. of lead, and in smelting it takes two tons of coal to produce three tons of lead. The Cordoba mines in Spain are said to be the richest in the world. The Missouri lead-field, near Chicago, is 1½ miles in length, the ore giving 70 per cent. lead. The importation of lead into the United States fell from 42,000 tons in 1870 to 4000 in 1880.

The production in the United States has been as follows :—

	1880	1889
	Tons	Tons
Colorado	36,000	70,000
Missouri	28,000	34,000
Various	25,000	87,000
Total .	89,000	191,000

LEATHER

The annual consumption in the United Kingdom, and the value of manufactured articles, were approximately :—

Year	Millions Lbs. Leather			Manufactured Value		
	British Hides	Foreign Hides	Total	Home, £	Export, £	Total, £
1805	27	...	27	8,000,000	15,000	8,015,000
1820	36	12	48	10,000,000	40,000	10,040,000
1830	40	30	70	12,600,000	80,000	12,680,000
1840	45	37	82	14,200,000	170,000	14,370,000
1850	50	70	120	19,700,000	610,000	20,310,000
1860	55	·87	142	22,300,000	2,130,000	24,430,000
1870	60	132	192	28,600,000	2,640,000	31,240,000
1881	65	144	209	30,100,000	3,930,000	34,030,000
1888	66	164	230	38,000,000	4,100,000	42,100,000

In 1835 M'Culloch estimated the manufactures thus :—

Boots and shoes	7,500,000
Saddlery, &c.	6,000,000
Total . .	13,500,000

There was an estimate in the *Parliamentary Gazetteer* of 1806 which put down the leather manufactures at £10,000,000 ; this was less than Eden's valuation in 1803, namely, £12,000,000. That of M'Pherson in 1783 was £10,500,000 (see *Manufactures*).

LEGACY AND PROBATE

The following table shows the amount of property changing hands by death, the amount under the head of Succession before 1870 being an estimate as one-third of the amount paying legacy-duty :—

Period	Annual Average, £			Ratio to Pop. per Inhabitant
	Legacy	Succession	Total	
				£ s. d.
1811–20	25,500,000	8,500,000	34,000,000	1 18 0
1841–50	43,900,000	14,600,000	58,500,000	2 4 0
1861–70	73,600,000	24,500,000	98,100,000	3 6 0
1876–80	113,000,000	41,000,000	154,000,000	4 10 0
1885–89	143,200,000	44,800,000	188,000,000	5 2 0

The exact amount of all property passing through the Probate Court in 1840 was ascertained by Porter to be £54,700,000, and if we compare his statement with those fo subsequent years from the *Statistical Abstract*, we find :—

	Total Legacy and Succession Property			Ratio	
	1840	1875	1889	1840	1889
	£	£	£		
England .	47,100,000	119,900,000	161,700,000	86.0	85.2
Scotland .	3,100,000	14,500,000	17,200,000	5.7	9.1
Ireland .	4,500,000	10,000,000	10,900,000	8.3	5.7
United Kingdom }	54,700,000	144,400,000	189,800,000	100.0	100.0

The returns for Scotland in 1840 did not include mortgages, and if these were added, the amount, it is thought, would have reached £4,000,000, or about 7½ per cent. of the total. Even allowing for this, the increase of wealth in Scotland since 1840 has been prodigious, namely, 330 per cent. against 244 per cent. in England.

The estates proved in the United Kingdom for legacy-duty, exclusive of succession estates, were as follows :—

Estates	Number, Annual Average		Amount, Annual Average, £	
	1883–84	1888–89	1883–84	1888–89
Over £100,000 .	149	172	32,700,000	43,500,000
£50,000–£100,000 .	242	261	16,800,000	18,200,000
£10,000–£50,000 .	2,019	2,045	41,300,000	43,500,000
£1000–£10,000 .	10,771	11,285	34,700,000	36,000,000
Under £1000 .	27,594	31,047	8,800,000	10,600,000
Total . .	40,775	44,810	134,300,000	151,800,000

Ratio as to Value		
Estates	1883–84	1888–89
Over £100,000	24.0	28.6
£10,000–£100,000 . . .	43.5	40.6
£1000–£10,000	26.0	23.8
Under £1000	6.5	7.0
Total . . .	100.0	100.0

The number of estates proved in the three kingdoms for legacy-duty only in 1877 was as follows :—

Amount	England	Scotland	Ireland	United Kingdom
Over £20,000 . .	945	125	59	1,129
£5000–£20,000 .	2,784	356	199	3,339
£1000–£5000 . .	7,625	1,262	800	9,687
Under £1000 . .	21,913	2,567	2,271	26,751
Total . .	33,267	4,310	3,329	40,906

Further details on this subject as regards the United Kingdom, France, Italy, and Belgium will be found under the title *Wealth.*

HOLLAND

The legacy and succession returns for the years 1880–83 gave the following averages :—

	Estates
Over £40,000	58
£4000–£40,000	356
£1000–£4000	2,722
Under £1000	6,280
Total . .	9,416

LIBRARIES

	Libraries		Volumes	
	1848	1880	1848	1880
United Kingdom . .	28	202	1,542,000	3,770,000
France	107	505	3,975,000	7,298,000
Germany	80	594	3,053,000	4,070,000
Russia	12	145	451,000	950,000
Austria	41	577	2,193,000	5,476,000
Italy	45	493	2,274,000	4,349,000
Spain and Portugal .	24	90	963,000	1,200,000
Switzerland	13	1,654	465,000	1,819,000
Belgium	10	105	400,000	610,000
Holland	10	220	330,000	800,000
Scandinavia . . .	13	94	968,000	1,250,000
Europe	383	4,679	16,614,000	31,592,000
United States . . .	20	59	600,000	2,263,000
Total . .	403	4,738	17,214,000	33,855,000

The above does not include any libraries with less than 10,000 volumes (except possibly those of Switzerland). The principal libraries of the world are :—

	Volumes	MSS.
British Museum . .	1,120,000	41,000
Imperial, Paris . .	2,078,000	86,000
St. Petersburg . .	1,045,000	34,000
Berlin	740,000	15,000
Munich	810,000	24,000
Vienna	420,000	21,000
Dresden	500,000	4,000
Vatican	340,000	32,000
Copenhagen . . .	410,000	5,000
Göttingen . . .	400,000	5,000
Oxford	300,000	22,000
Brussels	210,000	20,000
St. Geneviève, Paris .	250,000	30,000
Washington . . .	230,000	...
Boston	202,000	...
Astor, New York . .	160,000	...

The library of the British Museum has 32 miles of shelves filled with books, and is visited by 91,000 readers yearly. The Bibliothèque Impériale of Paris has 18 miles of books and 37,000 readers yearly.

The libraries in the United States were as follows :—

Year	Number	Volumes
1850	15,615	4,640,000
1860	19,581	8,550,000
1870	56,015	19,460,000

In 1880 there were 23,000 school libraries containing 45,000,000 volumes, and 314 large public libraries, exclusive of all containing less than 10,000 volumes.

LIFE

The following table shows the expectation of life in various countries at different ages :—

Age	Years to Live					
	England	United States	Belgium	Holland	Saxony	Sweden
10	49.2	48.7	44.3	46.5	47.0	48.0
20	41.0	42.2	37.1	38.9	39.3	40.1
30	33.6	35.3	31.2	32.1	32.1	33.2
40	26.7	28.2	25.5	26.2	25.0	25.9
50	20.2	20.9	19.6	20.0	18.0	19.1
60	13.9	14.1	13.2	13.3	11.7	12.9
70	8.9	8.5	8.2	8.0	6.9	8.0
80	5.5	4.4	5.3	4.6	3.9	4.1

The expectation of life is always longer with females than males, viz. :—

Age	Years to Live							
	England		Holland		Sweden		Belgium	
	Male	Female	Male	Female	Male	Female	Male	Female
Birth . .	41.9	45.2	34.1	36.4	41.3	45.6	...	...
5 years .	51.5	53.6	48.7	49.2	49.4	53.0	...	...
10 ,, .	48.2	50.3	45.9	46.5	46.5	50.0	43.8	44.8
20 ,, .	39.9	42.1	38.3	39.2	38.6	42.1	36.4	37.7
30 ,, .	33.2	34.1	31.8	32.4	31.2	34.5	30.5	31.9
40 ,, .	26.5	27.5	25.0	26.4	24.3	27.2	24.8	26.1
50 ,, .	19.9	20.8	18.5	19.7	18.0	20.1	18.9	20.3
60 ,, .	13.6	14.5	12.8	13.3	12.3	13.5	12.4	13.9
70 ,, .	8.6	9.1	7.9	8.1	7.4	8.0	8.1	8.3
80 ,, .	5.2	5.6	4.4	4.5	3.9	4.3	5.2	5.4
90 ,, .	2.8	3.1	2.4	2.7	2.4	2.8	2.9	3.1

It will be observed that the mean expectation at five years of age is greater than at birth, but after five years it diminishes. Finlayson's table of expectation for English ladies of fortune coincides closely with the result of widows in France in receipt of pensions :—

Age	Years of Life		
	English Ladies	French Widows	French Male
40	29.9	29.3	...
50	23.0	22.8	18.7
60	16.2	16.0	14.3
70	10.1	10.1	8.7
80	5.7	5.9	4.4

Kasper gives the percentage of persons of various professions who reach 70 years thus: —

	Per Cent.		Per Cent.		Per Cent.
Physicians .	24	Lawyers . .	29	Merchants .	33
Teachers .	27	Clerks . .	32	Farmers . .	40
Artists . . .	28	Soldiers . .	32	Clergy . . .	42

Expectation of life varies as follows in England with condition :—

Age	Years to Live			
	Gentry	Farm Labourers	Sober	Intemperate
20 . . .	38	48	40	14
30 . . .	31	41	34	13
40 . . .	24	33	27	10
50 . . .	18	25	20	8
60 . . .	12	18	14	6

In the United States the span of life for various professions is as follows :—

	Years			Years
Shopmen .	. . 41.8	Mechanics	. .	47.3
Waggoners	. . 43.6	Merchants	. .	48.4
Labourers	. . 44.6	Lawyers .	. .	52.6
Seamen .	. . 46.1	Farmers .	. .	64.2

Madden's table of famous men, and Neuville's average for professions at Frankfort, give the following spans of life :—

Madden's Famous Men		Neuville's Frankfort	
	Years		Years
Clergymen .	. . 67	Physicians .	. . 52
Physicians .	. . 68	Lawyers .	. . 54
Lawyers .	. . 69	Merchants .	. . 57
Artists .	. . 70	Teachers .	. . 57
Naturalists .	. . 71	Clergy .	. . 66

Many remarkable cases of longevity are recorded in all countries and all ranks of life.

1. Countess of Desmond, killed by falling from a cherry-tree in her 146th year. 2. Thomas Parr, died after a dinner-party at Lord Arundel's, aged 152. 3. Cardinal de Salis, who recommended daily exercise in all weathers, aged 110. 4. John Riva, of Venice, who chewed citron bark daily, died aged 116, leaving a son of 14 years. 5. Henry Jenkins, died aged 116, at Bolton-on-Swale in 1670. 6. Mme. Roviro, aged 164, who died in 1741, leaving a son aged 116. 7. Peter Garden, died at Edinburgh in 1775, aged 131. Bertherand's death-roll of slaves at Carthage showed 5 per cent. over 80, and 1 per cent. over 100 years. The Third Legion of Augustus had a death-record which showed that 17 per cent. passed 70 years. Moreover, Pliny says—"The year of our Lord 76 is memorable, for in that year there was a Census from which it appears that in the part of Italy lying between the Apennines and the River Po, there were found fifty-four persons 103 years old; fifty-seven 110 years; two 120 years; four 130 years; four 135 years; and three 140 years each."

In the eighteenth century Sejoncourt published a list of 49 persons who had died between the ages of 130 and 175 years. Among centenarians of recent date were Mrs. Anne Butler, daughter of Admiral Winn, died at Portsmouth, January 1883, aged 103, and Mrs. Betty Lloyd, at Ruabon, Wales, March 1883, aged 107. According to Dr. Farr's tables, of one million male and female persons born, 77 males and 147 females will reach 100 years; but the newer tables of Dr. Ogle give only 41 males and 112 females.

A meeting of 2000 persons over 70 years of age is annually held at Leicester, and of these 400 die before the next anniversary.

	Table of Survivals of a Thousand Born									
Age	England	France	Prussia	Austria	Italy	Spain	Sweden	Norway	Belgium	Switzerland
	1881–82	1880–82	1881–83	1880–82	1881–83	1880–84	1881–82	1881–82	1881–83	1881–83
Number born . .	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
5 years	762	751	684	614	632	571	783	838	756	747
10 ,, ...	736	724	648	569	591	530	746	803	732	721
15 ,, ...	723	706	632	551	572	514	727	783	718	707
20 ,, ...	706	685	616	532	554	496	711	760	699	689
25 ,, ...	685	657	596	506	531	476	691	733	675	665
30 ,, ...	660	627	571	477	508	457	669	704	648	639
40 ,, ...	597	566	514	423	462	412	621	644	589	578
50 ,, ...	516	499	452	357	407	358	560	585	517	502
60 ,, ...	405	408	351	267	328	292	473	494	419	393
70 ,, ...	255	268	205	150	203	184	330	338	271	231
80 ,, ...	96	104	65	44	65	69	139	161	101	69

The following table distinguishes the sexes in certain countries, but the figures are not so recent as those above :—

Age	France		Belgium		Italy		Denmark	
	Males	Females	Males	Females	Males	Females	Males	Females
Number born	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
5 years	716	744	720	741	590	608	741	769
10 ,, ...	693	719	684	699	552	567	711	737
20 ,, ...	660	680	640	650	518	528	676	698
30 ,, ...	602	626	566	576	466	478	624	650
40 ,, ...	543	567	484	499	418	424	569	590
50 ,, ...	476	507	403	415	357	368	488	522
60 ,, ...	383	425	319	337	279	294	376	429
70 ,, ...	245	291	179	221	170	180	238	289
80 ,, ...	86	113	60	76	58	62	84	114

Kasper's table of rich and poor shows survivals thus :—

Age	Rich	Poor
Number born . .	1,000	1,000
5 years	943	655
20 ,, ...	886	566
40 ,, ...	695	396
70 ,, ...	235	65

Korösi shows that poverty and overcrowding shorten the span of life at Buda-Pesth : in healthy quarters it is 47 years, in the workmen's tenement dwellings only 32 to 37.

Evidence to the same effect will be found in other parts of this book; the reader has only to turn to the Index for the items *Infant-mortality* and *Overcrowding*.

UNITED KINGDOM

The Registrar-General's returns show the expectation of life is now about three years longer than for the period of 17 years ending 1854, which is probably due to abolishing the duty on soap and the window-tax, as well as to water supply, drainage, &c.

Ages	Persons		Male		Female	
	1838–54	1876–80	1838–54	1876–80	1838–54	1876–80
0 years .	40.86	43.56	39.91	41.92	41.85	45.25
5 ,, .	50.02	52.56	49.71	51.47	50.33	53.65
10 ,, .	47.36	49.24	47.05	48.16	47.67	50.32
15 ,, .	43.54	45.05	43.18	43.94	43.90	46.15
20 ,, .	39.88	40.98	39.48	39.86	40.29	42.10
25 ,, .	36.57	37.21	36.12	36.05	37.04	38.36
35 ,, .	29.99	30.01	29.40	28.88	30.59	31.12
45 ,, .	23.41	23.29	22.76	22.34	24.06	24.21
55 ,, .	16.94	16.75	16.45	16.09	17.43	17.37
65 ,, .	11.17	11.19	10.82	10.79	11.51	11.55
75 ,, .	6.72	6.81	6.49	6.52	6.93	7.04

Dr. Humphrey's table of survivals for England, for the periods ending 1854 and 1880, and a table compiled for Scotland in 1879–81, compare as follows, being in favour of Scotland :—

Age	England						Scotland
	Males		Females		General Pop.		
	1838–54	1876–80	1838–54	1876–80	1838–54	1876–80	1879–81
No. born	1,000	1,000	1,000	1,000	1,000	1,000	1,000
5 years	724	736	751	766	737	751	780
10 ,,	690	712	716	742	703	727	748
15 ,,	673	700	697	729	685	715	729
20 ,,	652	685	674	714	663	699	706
25 ,,	624	664	644	692	634	678	679
35 ,,	564	608	580	639	572	623	620
45 ,,	496	531	510	571	503	551	550
55 ,,	410	435	433	490	421	462	460
65 ,,	295	304	324	364	309	333	335
75 ,,	148	152	175	196	161	173	176

FRANCE

There has been a steady improvement in the span of life, which Duvillard estimated in the last century at 26 years and 2 months, and Lombard at 40 years in 1868. The tables of survivals are as follows :—

Age	1750	1789	1817–32	1856–65	1880–82
	St. Maur	Duvillard	Montferrand	Bertillon	Stat. Gen.
Number born	1,000	1,000	1,000	1,000	1,000
5 years . .	540	583	707	710	751
10 ,, . .	484	551	668	681	724
15 ,, . .	472	529	647	664	706
20 ,, . .	449	502	624	642	685
30 ,, . .	388	438	560	584	627
40 ,, . .	314	369	510	533	566
50 ,, . .	242	297	449	473	499
60 ,, . .	168	213	365	389	408
70 ,, . .	90	118	229	249	268
80 ,, . .	23	35	76	89	104

Levasseur gives a table of 1474 centenarians in 20 years ending 1885, from which it appears that 28 men and 46 women die yearly over 100 years of age.

RUSSIA

In 1867 the span of life was estimated thus :—

Among	Years		Among	Years	
	Males	Females		Males	Females
Greeks .	22.1	23.6	Jews . . .	29.4	31.1
Catholics	28.0	29.7	Mussulmen .	26.5	27.1
Protestants	32.9	36.2	General pop.	23.0	24.6

GERMANY

The German official returns for 11 years, 1871–81, give the following table of survivals :—

Of 1000 Born

Age	Males	Females	Age	Males	Females
1 . . .	747	783	30 . . .	545	576
3 . . .	676	709	40 . . .	488	516
5 . . .	649	681	50 . . .	412	452
10 . . .	621	652	60 . . .	311	363
15 . . .	609	639	70 . . .	178	219
20 . . .	593	623	80 . . .	50	66

HOLLAND AND SWEDEN

Tables of survivals show a great improvement in both these countries, as compared with former periods :—

Age	Holland		Sweden		
	1840–51	1870–80	1757–63	1861–70	1881–82
	Baumhauer	Von Pesch	Vargentin	Berg	Stat. Gen.
No. born .	1,000	1,000	1,000	1,000	1,000
10 years . .	644	654	611	737	746
20 ,, . .	630	620	570	703	711
30 ,, . .	568	566	519	656	669
40 ,, . .	502	515	459	593	621
50 ,, . .	434	494	385	511	560
60 ,, . .	310	357	293	401	473
70 ,, . .	182	224	175	246	330
80 ,, . .	58	76	56	78	139

Persons dying over eighty years of age in Sweden formed the following ratio of all deaths :—

Period	Per 1000
1811–30	47
1831–50	53
1851–60	46
1861–75	58

LIGHT

It requires 50 lbs. of tallow candles to produce as much light as 1000 cubic feet of gas. Dr. Frankland's table (1866) of the cost of light was as follows :—

	Cost for Ten Hours of Light
One gallon paraffin oil . . .	6 pence
Equivalent amount of gas . .	3 ,,
Thirty-three tallow candles .	32 ,,
Sixteen paraffin ,,	46 ,,
Twenty sperm ,,	84 ,,
Twenty-four wax ,, . . .	87 ,,

A light of 100 candle-power, says Mr. Fischer, throws out the following degrees of heat :—

Electric, arc . .	100	Petroleum, flat . .	7,200
,, incandescent	410	100 wax candles .	7,960
Gas, Siemens .	1,500	100 stearine candles .	8,940
Petroleum, round .	3,360	Paraffin lamps . .	9,200
Gas, argand .	4,860	100 tallow candles .	9,700
Colza . .	6,800	Manchester gas-burner	12,150

Light travels 185,000 miles per second.

LIGHTHOUSES

The number in various countries at different dates was approximately :—

	1830	1860	1885
England . . .	...	244	396
Scotland . . .	...	130	193
Ireland	...	90	138
United Kingdom . .	260	464	727
France	63	228	422
Germany . . .	20	40	183
Russia	18	77	194
Austria	5	10	63
Italy	10	91	263
Spain	11	50	178
Portugal . . .	4	15	30
Sweden and Norway .	110	120	337
Denmark . . .	70	77	63
Holland . . .	10	58	102
Belgium . . .	4	8	25
Greece	...	...	58
Turkey	10	15	134
Europe . . .	595	1,253	2,779
United States . .	130	379	1,991
Canada	38	92	651
Australia . . .	10	47	343
India	15	49	96
China	2	5	68
Japan	...	...	59
Brazil	5	16	57
West Indies . .	40	74	110
Spanish America .	15	27	54
Total . .	850	1,942	6,208

See Sir James Douglas's report to the British Association in 1886. The cost of lighting Smeaton's Eddystone lighthouse in 1759, with a light of 67 candle-power, was 18d. per hour, a sum now sufficient to provide a light of 160,000 candle-power. Canada uses 100,000 gallons of petroleum for lighting yearly, at a cost of £4000. Dungeness first adopted the electric light in 1862, and the French lighthouses followed in 1863.

LIGHTNING

According to Mr. Preece, there are 500,000 lightning conductors in the United Kingdom. The number of houses burnt yearly by lightning in Bavaria was :—

1833–43	32
1880–82	134

The number of persons killed by lightning averages 23 in England, 92 in France, 165 in Germany, 908 in Russia.

LIVING, COST OF

The cost of a workman's food in various countries in 1880 was :—

	Shillings per Week		Percentage of Food Cost
	Food	Wages	
Great Britain . .	14	31	45
France	12	21	57
Germany . . .	10	16	62
Belgium	12	20	60
Italy	9	15	60
Spain	10	16	62
United States . .	16	48	33
Australia . . .	11	40	28

The following table shows approximately the expenditure of the principal nations in the ordinary items that make up the cost of living. Food is at wholesale price in first hands (retail price being 30 per cent. higher), and taxes include all duties, tolls, and rates, direct or indirect, that go towards national or local revenues :—

	Millions £ Yearly							
	Food	Clothing	House Rent	Taxes	Transport	Fodder, &c.	Sundries	Total
United Kingdom . .	372	66	135	119	113	89	242	1,136
France	361	64	93	144	96	74	98	930
Germany	400	53	68	109	103	87	160	980
Russia	360	51	34	72	94	128	190	929
Austria	235	30	27	55	59	44	121	571
Italy	144	24	22	81	33	22	24	350
Spain	112	16	18	37	27	15	50	275
Portugal	24	3	4	8	5	1	8	53
Sweden . . .	37	6	4	7	10	4	30	98
Norway . . .	15	2	1	3	4	1	12	38
Denmark . . .	18	3	2	4	6	6	21	60
Holland . . .	36	6	7	15	8	7	17	96
Belgium . . .	56	12	6	11	17	12	41	155
Switzerland . .	20	3	2	3	5	2	19	54
Europe . . .	2,190	339	423	668	580	492	1,033	5,725
United States . .	455	98	127	165	231	228	746	2,050
Canada . . .	32	8	7	10	12	8	40	117
Australia . . .	28	7	13	12	10	14	40	124
Argentina . . .	25	6	5	14	8	7	20	85
Total . .	2,730	458	575	869	841	749	1,879	8,101

It is hardly necessary to say that the foregoing table is merely intended to shew comprehensively in round numbers the annual outlay of each nation under the principal headings and in the aggregate. Nothing like mathematical accuracy is to be expected, for it would be impossible. The figures, however, are not set down at random, but are estimates based on the observations of well-known writers and whatever is available in the way of official or semi-official statements. It is true that the cost of food, and indeed the outlay under any of the above heads, is likely to vary remarkably from one year to another, from which some persons may feel disposed to think that the table is of no value whatever. But this is an objection that might be made to many tables of a similar kind, whether in the present work or in those of other writers.

A statement was published in Paris in 1882 of the cost of maintenance of an artisan's family, and another by Miss Octavia Hill of a similar family in London in 1888, viz. :—

	Weekly Expenditure, Pence	
	Paris	London
Rent	30	69
Clothing . . .	24	56
Coal and light . .	10	16
Bread . . .	90	40
Meat . . .	63	48
Vegetables and fruit .	21	36
Milk, butter, &c.	39	23
Tea and coffee . .	14	16
Sugar . . .	7	10
Wine and liquor . .	35	10
Total . .	£1 7 9	£1 7 0

The earnings in both cases are supposed to reach 30s. a week. The London artisan has to pay, moreover, 20d. a week to his insurance club : his surplus therefore is only 16d. a week.

The retail prices paid by workmen for food in 1880 were (pence) :—

	England	France	Germany	Italy	New York	Chicago
Beef, lb. . . .	10.0	9.5	9.0	8.0	6.0	4.0
Bread, ,, . . .	2.0	1.6	2.0	3.0	2.0	2.0
Butter, ,, . . .	17.0	13.0	11.0	14.0	14.0	12.0
Eggs, dozen . .	11.0	9.0	10.0	9.0	14.0	9.0
Milk, quart . .	4.0	...	2.0	4.0	5.0	3.0
Sugar, lb. . .	4.0	5.0	5.0	4.0	5.0	5.0
Coffee, ,, . .	15.0	15.0	17.0	16.0	13.0	14.0
Rice, ,, . .	3.0	...	4.0	3.0	5.0	5.0
Pork, ,, . .	7.0	7.0	8.0	7.0	5.0	3.0
Potatoes, cwt. .	6.0	4.0	4.0	8.0	11.0	6.0

GREAT BRITAIN

The cost of living at various epochs, from estimates at the respective dates, is shown thus :—

Gentleman's Family in London

	1792	1823	1845	1883
	£	£	£	£
Rent	60	90	100	120
Taxes . .	18	40	30	40
Servants (2) . .	18	24	30	40
Clothing . .	60	70	80	100
Bread . . .	25	26	25	20
Meat . . .	25	30	50	80
Groceries . .	22	35	40	60
Wines . .	23	39	40	40
Dairy . . .	50	70	70	90
Coal and light . .	30	38	30	25
Washing . .	16	22	30	40
Sundries . .	58	81	95	110
Total . .	405	565	620	765

Family of five persons, besides two servants.

The period between 1792 and 1823 shows a rise of 40 per cent. in 31 years ; that from 1845 to 1883 one of 23 per cent. in 38 years.

Tradesman's Family (Bristol)

	1792	1823	1845	1883
	£	£	£	£
Rent . . .	10	15	18	20
Clothing . . .	10	12	12	15
Bread . . .	20	21	20	16
Meat . . .	10	14	20	28
Groceries . .	10	15	20	22
Sundries . .	10	13	15	19
Total .	70	90	105	120

English Labourer and Mechanic

	Labourer			Mechanic		
	1792	1823	1883	1792	1823	1883
	£	£	£	£	£	£
Bread, meat, &c.	16	17	20	18	20	22
Groceries . .	2	3	5	4	6	8
Rent	2	3	4	3	4	6
Clothing, &c. .	7	8	8	17	22	24
Total . .	27	31	37	42	52	60

In 1881 Professor Leone Levi estimated the annual expenditure of the people of the United Kingdom thus :—

	Quantity	£	Per Inhabitant		
			£	s.	d.
Meat, tons . .	1,400,000	99,800,000	2	17	0
Fish, ,, . .	300,000	14,500,000	0	8	2
Sugar, ,, . .	1,000,000	27,000,000	0	15	4
Potatoes, tons .	4,600,000	32,200,000	0	18	3
Bread, ,, .	6,300,000	77,500,000	2	4	0
Butter and cheese, tons	350,000	36,000,000	1	0	6
Milk and eggs .	...	42,000,000	1	4	0
Fruit and vegetables .	...	28,100,000	0	16	0
Tea and coffee .	...	18,300,000	0	10	0
Wine and liquor .	...	124,000,000	3	11	0
Food . . .	...	499,400,000	14	4	9
House-rent . .	...	77,000,000	2	4	0
Coal and light .	...	28,700,000	0	16	0
Taxes . .	...	47,500,000	1	7	0
Textiles and clothing	...	142,800,000	4	2	0
Science and books .	...	12,000,000	0	7	0
Amusements . .	...	12,600,000	0	7	4
Education . .	...	11,000,000	0	6	6
Tobacco . . .	...	13,100,000	0	7	8
Furniture and plate .	...	16,000,000	0	9	0
Churches . .	...	12,000,000	0	7	0
Water-supply . .	...	5,900,000	0	3	6
Total .	...	878,000,000	25	1	9

FRANCE

The cost of maintaining a small family of the middle class has been at various dates as follows :—

	Per Annum, £	
Year	France	Paris
1789	15	29
1840	19	48
1860	44	114
1880	51	135

In the seventeenth century the maintenance of a noble family cost £600 per annum, but 10 francs at that time contained as much silver as 19 at present, and £600 was therefore in reality £1100, irrespective of the superior purchasing power at that period. In 1679 Madame de Maintenon writes to her sister, whose family consisted of

her husband, herself, seven male and three female servants, "You can live like a princess on £600 a year," viz. :—

House Expenses			Per Annum	
Meat	. . . £44	Food, &c.	. . . £240
Bread	. . 20	Rent	. . . 40
Wine	. . 20	Wages	. . . 40
Butter	. . 36	Opera, &c.	. . . 120
Sundries	. . 120	Dress, &c.	. . . 160
Total	. 240	Total	. . 600

The expenditure of the population of Paris in 1826 was :—

	Per Inhabitant	Amount
	£ s. d.	£
Food	14 2 0	12,350,000
Taxes	5 9 0	4,760,000
Rent	4 11 3	4,000,000
Clothing	2 16 5	2,470,000
Furniture	2 14 6	2,400,000
Fuel and light . . .	2 14 0	2,380,000
Servants	1 16 8	1,610,000
Cabs and horses . .	1 15 6	1,540,000
Instruction . . .	1 11 3	1,370,000
Washing	1 8 9	1,260,000
Sundries	1 9 5	1,290,000
Total . .	40 8 9	35,430,000

The chief items of food were :—

	Per Inhabitant	£ s. d.
Bread, lbs. . . .	400	2 12 5
Wine, gallons . . .	25	3 2 0
Meat, lbs. . . .	165	3 19 0
Dairy	...	1 0 6
Sugar, lbs. . . .	26	1 0 0
Sundries . . .	...	2 8 0
Total . .	...	14 2 0

The Industrial Committee of Mulhouse reported that of every 100 francs earned by a workman, 20 went for bread, 15 for groceries, 18 for milk, &c., 8 for meat, 15 for rent, and 16 for clothes, leaving 8 francs for sundries.

GERMANY

In 1850 the annual maintenance of a peasant family of five persons in Prussia cost as follows :—

	£ s. d.
Food	16 0 0
Clothing	5 8 0
Rent	2 14 0
Coal and light	2 14 0
Taxes	1 5 0
Sundries	3 9 0
Total . .	31 10 0

Engel estimates the annual cost of maintenance for a peasant family in Germany thus :—

	£
Man	19
Wife	16
Three children	21
Family of five persons . .	56

He considers that a child of 10 years represents an outlay of £80, a youth of 15 one of £140.

Roth estimates that a child of 10 has cost £132, and one of 13 no less than £186.

Engel's figures are preferable.

The students of Heidelberg University in 1871 were able to maintain themselves at an average outlay of £31

per annum, but this rose to £58 in 1875, and to £69 in 1878.

RUSSIA

The income and expenditure of a fisherman's family yearly is as follows :—

Income	£ s. d.	Expenditure	£ s. d.
Game, 200 lbs. .	2 10 0	Rye, 1 ton . . .	7 0 0
Caviar, 200 lbs. .	2 10 0	Taxes	2 6 0
Fish	5 0 0	Clothing . . .	2 10 0
Woodcutting . .	2 10 0	Sundries . . .	0 14 0
Total . .	12 10 0	Total . .	12 10 0

As regards the income and expenditure of the ordinary Moujik or peasant, Strebinski writes as follows : "The surplus grain which he has for sale brings him in £10 sterling, which goes thus :—

	£ s. d.
Rent	3 12 0
Taxes	0 16 0
Clothing	2 10 0
Sundries	3 2 0
Total . .	10 0 0

"His agricultural capital is (exclusive of cattle) about £33 sterling, viz. :—

	£ s. d.
House	18 0 0
Barn	7 0 0
Carts and harness . . .	3 0 0
Implements, &c. . .	5 8 0
Total . .	33 8 0

ITALY

The Piedmontese peasant, who earns 18s. a week, spends 13s. on food ; the labourer of the island of Sardinia earns only 9s., and spends 7s. on food, viz. :—

	Piedmont, Pence Weekly	Island of Sardinia, Pence Weekly
Bread	16	26
Meat	42	5
Wine	40	6
Sundries . . .	58	47
Total . .	156	84

LOCAL TAXATION

The amount annually levied by local authorities in taxes, tolls, &c., was approximately in the various countries as follows, 1886–87 :—

	£		£
England . . .	38,010,000	Russia . . .	11,200,000
Scotland . . .	4,440,000	Austria . . .	5,300,000
Ireland . . .	3,330,000	Italy . . .	27,200,000
United Kingdom	45,780,000	Holland . . .	2,100,000
France . . .	40,800,000	Belgium . . .	2,250,000
Germany . . .	44,000,000	United States .	84,200,000

Local taxation of the United Kingdom and France compare as follows :—

Year	United Kingdom, £	France, £	Shillings per Inhab.	
			United Kingdom	France
1830 . .	10,820,000	7,100,000	9	4
1840 . .	10,240,000	8,800,000	8	5
1850 . .	11,050,000	11,700,000	8	7
1860 . .	14,950,000	18,100,000	10	10
1870 . .	24,300,000	21,300,000	16	12
1882 . .	38,100,000	32,400,000	22	17
1887 . .	45,800,000	40,800,000	24	21

The finances of various cities in 1880-81 showed thus :—

	Annual Expenditure, £	Debt, £	£ per Inhabitant	
			Expenditure	Debt
Antwerp . . .	376,000	...	2.1	...
Berlin	2,200,000	5,610,000	2.0	5.1
Birmingham . .	1,610,000	6,110,000	4.0	15.0
Boston	...	6,200,000	...	16.5
Bradford . . .	1,100,000	3,400,000	6.0	19.0
Breslau . . .	361,000	1,270,000	1.5	5.3
Brighton . . .	210,000	700,000	1.6	5.5
Bristol	405,000	600,000	2.0	2.9
Brooklyn . . .	...	7,900,000	...	14.9
Bucharest . . .	337,000	570,000	1.5	1.8
Buda-Pesth . .	672,000	1,280,000	2.2	4.3
Christiania . .	250,000	345,000	3.3	4.5
Copenhagen . .	325,000	850,000	1.6	4.1
Florence . . .	950,000	5,540,000	5.7	33.5
Frankfort . . .	422,000	1,460,000	3.5	12.1
Genoa	466,000	1,600,000	2.6	9.0
Leeds	1,300,000	3,500,000	4.2	11.3
Leipzig . . .	312,000	740,000	2.3	5.5
Liège	309,000	1,500,000	2.7	13.5
Liverpool . . .	3,200,000	21,600,000	5.9	39.6
London . . .	11,300,000	20,600,000	2.9	5.3
Manchester . .	1,900,000	6,200,000	3.3	10.9
Milan	...	3,050,000	...	9.3
Munich . . .	395,000	1,500,000	1.8	7.0
Naples	...	4,860,000	...	9.9
Newcastle . .	400,000	700,000	2.7	4.8
New York . .	...	23,100,000	...	19.1
Palermo . . .	320,000	540,000	1.3	2.2
Paris	10,440,000	85,300,000	4.7	34.2
Philadelphia . .	...	3,400,000	...	4.1
Rome	820,000	2,340,000	2.7	7.8
San Francisco .	970,000	750,000	4.1	3.2
St. Louis . . .	...	4,800,000	...	14.0
Sheffield . . .	410,000	500,000	1.4	1.8
Stockholm . .	360,000	480,000	2.3	3.0
Stuttgart . . .	120,000	400,000	1.1	3.7
Trieste	373,000	500,000	3.7	4.9
Turin	520,000	510,000	2.7	2.7
Venice	182,000	430,000	1.4	3.3
Vienna . . .	2,700,000	8,470,000	2.5	7.8

The following is a synopsis of local revenues :—

ENGLAND

	1868 £	1880 £	1887 £
Rates	16,400,000	25,700,000	32,800,000
Tolls	4,350,000	4,600,000	5,250,000
Loans	5,520,000	13,720,000	8,940,000
Government subsidy	950,000	2,700,000	3,980,000
Sundries . . .	3,220,000	6,290,000	3,940,000
Total .	30,440,000	53,010,000	54,910,000

SCOTLAND

Rates	1,500,000	2,600,000	3,400,000
Tolls	500,000	1,060,000	1,030,000
Loans	250,000	1,120,000	1,800,000
Government subsidy	200,000	550,000	710,000
Sundries . . .	550,000	740,000	370,000
Total .	3,000,000	6,070,000	7,310,000

IRELAND

Rates	2,280,000	2,650,000	2,840,000
Tolls	280,000	510,000	490,000
Loans	240,000	260,000	480,000
Government subsidy	80,000	100,000	120,000
Sundries . . .	180,000	350,000	285,000
Total .	3,060,000	3,870,000	4,215,000

UNITED KINGDOM

	1868 £	1880 £	1887 £
Rates . . .	20,180,000	30,950,000	39,040,000
Tolls . . .	5,130,000	6,170,000	6,770,000
Loans	6,010,000	15,100,000	11,220,000
Government subsidy	1,230,000	3,350,000	4,810,000
Sundries . . .	3,950,000	7,380,000	4,595,000
Total .	36,500,000	62,950,000	66,435,000

Local expenditure was as follows :—

ENGLAND

	1868 £	1880 £	1887 £
Poor relief . .	7,500,000	8,040,000	8,200,000
Police and works .	15,350,000	32,200,000	32,200,000
Schools . . .	...	3,650,000	5,400,000
Roads and bridges	2,600,000	2,200,000	2,100,000
Harbours and lights	2,700,000	3,200,000	3,800,000
Sundries . . .	2,300,000	2,200,000	2,700,000
Total .	30,450,000	51,490,000	54,400,000

SCOTLAND

Poor relief . .	870,000	880,000	880,000
Police and works .	970,000	2,300,000	3,100,000
Schools . . .	...	1,200,000	1,400,000
Roads and bridges	320,000	350,000	690,000
Harbours and lights	240,000	1,000,000	1,060,000
Sundries . . .	180,000	190,000	150,000
Total .	2,580,000	5,920,000	7,280,000

IRELAND

Poor relief . .	840,000	1,000,000	1,100,000
Roads and bridges	1,120,000	1,140,000	1,180,000
Harbours and lights	460,000	530,000	520,000
Sundries . . .	680,000	1,090,000	1,490,000
Total .	3,100,000	3,760,000	4,290,000

UNITED KINGDOM

Poor relief . .	9,210,000	9,920,000	10,180,000
Police and works .	16,320,000	34,500,000	35,300,000
Schools . . .	...	4,850,000	6,800,000
Roads and bridges	4,040,000	3,690,000	3,970,000
Harbours and lights	3,400,000	4,730,000	5,380,000
Sundries . . .	3,160,000	3,480,000	4,340,000
Total .	36,130,000	61,170,000	65,970,000

Schools and police in Ireland, as well as other items, are defrayed out of the Imperial Treasury at a cost of £3,015,000, of which £1,600,000 are for police and £900,000 for schools, bringing up all local expenditure in Ireland to £7,100,000.

Local taxation in England and Wales was as follows :—

Year	£	Year	£
1688 . . .	780,000	1840 . . .	8,020,000
1730 . . .	1,380,000	1850 . . .	8,910,000
1770 . . .	1,690,000	1862 . . .	12,210,000
1790 . . .	2,420,000	1868 . . .	16,100,000
1803 . . .	5,350,000	1880 . . .	31,060,000
1813 . . .	8,650,000	1886 . . .	37,300,000

The expenditure in England and Wales for support of the poor was as follows :—

Period	Annual Average, £	Rental Valuation, £ *	Poor-Rate per £, Pence	Poor-Rate per Inhab., Pence
1702–14 .	910,000	14,200,000	16	41
1760–75 .	1,520,000	24,900,000	15	58
1783–93 .	2,050,000	30,300,000	16	66
1803 . .	4,080,000	35,100,000	27	107
1815 . .	6,100,000	53,800,000	27	133
1816–20 .	7,310,000	58,200,000	30	152
1830–35 .	6,742,000	75,900,000	22	116
1842–50 .	5,290,000	90,400,000	14	74
1851–60 .	5,510,000	109,600,000	12	69
1861–70 .	6,740,000	134,300,000	12	77
1871–80 .	7,710,000	167,200,000	11	75
1880 . .	8,015,000	191,150,000	10	74

The above shows only the rates expended on the poor, but the poor-rate often rose 50 per cent. higher, as it included police and other items. The valuation included many items of real estate not liable to poor-rate, and in 1880 was made up thus :—

Houses	£96,500,000
Lands	51,700,000
Railways	24,500,000
Mines	10,300,000
Gasworks, &c.	8,150,000
Tota . . .	191,150,000

* This table must not be confused with poor-law assessment, which was always less ; for instance, in 1880 the assessed gross rental was only £158,000,000, and the taxable rental £134,000,000.

Local debts in Great Britain in 1880 were as follows :—

Sanitary	£56,700,000
Docks	23,200,000
Sundry	57,000,000
Scotch	16,300,000
Total . . .	153,200,000

In 1888 the local debts were known to exceed 200 millions sterling. Those of England and Wales rose as follows :—

Year	London, £	Provinces, £	Total, £
1882 . .	32,200,000	119,500,000	151,700,000
1885 . .	35,900,000	137,300,000	173,200,000
1888 . .	39,700,000	152,500,000	192,200,000

FRANCE

The local taxes at various dates stood thus :—

	1806 £	1837 £	1864 £	1882 £	1886 £
Paris	736,000	2,760,000	5,370,000	9,805,000	10,200,000
Thirty cities	490,000	1,490,000	2,460,000	4,230,000	} 30,600,000
Communes	800,000	4,030,000	12,300,000	18,405,000	
Total	2,026,000	8,290,000	20,130,000	32,440,000	40,800,000

The following statement of Octroi for all France was published in 1886 :—

Year	Towns Taxed	Amount, £ Liquor	Food	Fuel	Fodder	Sundries	Total
1831	1,467	880,000	700,000	300,000	120,000	200,000	2,200,000
1840	1,435	1,280,000	880,000	400,000	160,000	380,000	3,100,000
1850	1,436	1,680,000	1,150,000	450,000	200,000	320,000	3,800,000
1860	1,460	2,300,000	1,640,000	700,000	300,000	860,000	5,800,000
1870	1,516	3,200,000	1,800,000	650,000	300,000	750,000	6,700,000
1880	1,541	4,900,000	3,000,000	1,200,000	600,000	1,340,000	11,040,000
1885	1,529	4,900,000	3,100,000	1,300,000	600,000	1,150,000	11,050,000

Octroi is the principal municipal tax, and presses most heavily on the working-classes, as it augments the cost of food, fuel, and other necessaries. In sixty years this tax increased five-fold, while the population of the cities so taxed had only doubled, the ratio per inhabitant being now 20 shillings yearly as compared with 8 shillings in 1823. The following table shows the aggregate amount collected for Octroi in French towns at various dates :—

Year	Amount, £	Population Taxed	Per Inhab., Shillings
1823 . . .	2,470,000	5,998,000	8
1833 . . .	2,640,000	6,306,000	8
1843 . . .	3,302,000	7,297,000	9
1853 . . .	3,617,000	7,330,000	10
1863 . . .	6,298,000	9,582,000	13
1873 . . .	8,451,000	10,517,000	16
1880 . . .	11,040,000	11,255,000	20

The Octroi of Paris contributes one-half of the total, that is, it is equal to the aggregate of all other French cities. It was at various dates as follows :—

Year	Amount, £	Population	Per Head, Shillings
1801 . . .	441,000	553,000	16
1821 . . .	1,040,000	724,000	29
1845 . . .	1,370,000	986,000	28
1867 . . .	4,030,000	1,732,000	46
1880 . . .	5,640,000	2,180,000	52
1889 . . .	6,030,000	2,400,000	50

In all French cities this tax has grown faster than population. The figures of all four cities in 1880 compare with 1867 thus :—

	Octroi, £ 1867	1880	Shillings per Inhab. 1867	1880
Paris . . .	4,030,000	5,640,000	46	52
Marseilles .	307,000	490,000	21	28
Lyons . .	244,000	480,000	16	25
Rouen . .	102,000	155,000	21	29

The aggregate population of the 1529 towns and cities was 12,000,000, and the amount paid in Octroi in 1885 showed thus :—

	Amount, £	Pence per Head
Wine	2,840,000	57
Alcohol, &c. . .	1,000,000	20
Oil	240,000	5
Food	3,100,000	62
Fuel	1,300,000	26
Fodder . . .	600,000	12
Bricks, &c. . .	1,000,000	20
Sundries . . .	970,000	20
Total . .	11,050,000	212

The above is for all, including Paris ; but the Octroi of Paris was much above the average, namely, 60 francs or 48s. per head, the average for the other 1528 towns being 14 francs or 11s. per head.

GERMANY

Local expenditure in Prussia was as follows :—

	1869	1876
	£	£
Schools	1,900,000	3,500,000
Streets . . .	1,700,000	3,000,000
Interest on debt . .	2,500,000	4,800,000
Poor	2,300,000	2,700,000
Police, &c. . . .	3,400,000	5,900,000
Total . .	11,800,000	19,900,000

Municipal expenditure in 1876 at Berlin, Breslau, and Cologne was as follows :—

	Berlin	Breslau	Cologne
	£	£	£
Schools . .	230,000	55,000	32,000
Streets . .	400,000	27,000	10,000
Interest on debt .	300,000	80,000	70,000
Poor . . .	270,000	13,000	25,000
Police, &c. . .	420,000	65,000	23,000
Total .	1,620,000	240,000	160,000

The average municipal expenditure was as follows :—

Year	Shillings per Inhabitant			
	Berlin	Breslau	Cologne	Frankfort
1869 . .	15	11	12	18
1876 . .	27	18	21	20

All local taxation in Germany may be estimated at 18s. per inhabitant, say 44 millions sterling.

AUSTRIA-HUNGARY

The municipal finances of Prague in 1884 showed :—

Receipts, £		Expenses, £	
House-tax . .	47,000	Water supply . .	40,000
Tolls . . .	60,000	Schools and hospitals	41,000
Sundries . .	88,000	Sundries . . .	164,000
Total .	195,000	Total .	245,000

BELGIUM

The district finances in 1887 showed thus :—

Receipts, £		Expenditure, £	
Tobacco, &c. . .	70,000	Schools . . .	100,000
Dog-tax . .	50,000	Roads . . .	110,000
Sundries . .	170,000	Sundries . . .	240,000
State subsidy .	250,000	Total .	450,000
Total .	540,000		

The above does not include city finances. Those of Brussels in 1884 showed :—

Receipts, £		Expenses, £	
Gas and water rates	280,000	Schools . .	50,000
Municipal properties	190,000	Debt . .	40,000
Tolls . . .	160,000	Police, &c. . .	560,000
Sundries . . .	170,000	Sundries . .	120,000
Total .	800,000	Total .	770,000

ITALY

Local taxation, according to official returns, showed thus :—

Year	£	Shillings per Inhabitant
1867 . . .	12,900,000	10.0
1877 . . .	20,100,000	15.0
1885 . . .	27,200,000	18.0

The average per inhabitant, distinguishing urban from rural communes, was as follows :—

Year	Shillings per Inhabitant	
	Urban	Rural
1867	18 ...	6
1877	27 ...	9

Urban taxes in 1877 comprised : Octroi, £5,100,000 ; legacy dues, £1,700,000 ; sundries, £5,200,000 ; making a total of £12,000,000.

The average Octroi per head in 1877 was :—

Shillings per Inhabitant

Naples . .	12	Milan . . .	14	Rome . . .	22
Turin . . .	12	Palermo . .	16	Florence . .	24
Venice . . .	14	Leghorn . .	16	Genoa . . .	26

Local debts in 1885 amounted to £41,500,000 sterling.

UNITED STATES

The taxes in the several States for local purposes (not municipal) were in 1889 as follows :—

	Tax, £	Population in 1890	Shillings per Head
New England .	1,660,000	4,690,000	7.0
Middle States .	4,060,000	14,110,000	5.9
Southern States .	3,640,000	18,280,000	4.0
Western States .	5,740,000	25,400,000	4.5
Total . .	15,200,000	62,480,000	4.9

In some of the principal States the taxes were in 1889 thus :—

	Tax, £	Population	Shillings per Head
New York . . .	1,900,000	5,980,000	6.2
Pennsylvania . .	1,740,000	5,250,000	6.7
Massachusetts .	1,050,000	2,230,000	9.6
Ohio	1,040,000	3,670,000	5.7
Illinois	780,000	3,820,000	4.1
Kentucky . . .	780,000	1,850,000	8.4
Various	7,910,000	39,680,000	4.0
Total . .	15,200,000	62,480,000	4.9

Municipal taxes ranged ordinarily from 2 to 3 per cent. on all assessed properties, making up a total of about 37 millions sterling, or £3 per inhabitant yearly. These added to state taxes made up altogether £52,200,000 of local taxation, or 17s. per head of the total population. Compared with 1860 we find :—

Year	Local Taxes, £	Population	Shillings per Head
1860 . . .	19,600,000	31,400,000	13
1889 . . .	52,200,000	62,480,000	17

The aggregate of state and municipal debts at various dates was as follows :—

	1850	1870	1880	£ per Inhabitant		
				1850	1870	1880
	£	£	£			
New York. . . .	4,800,000	29,100,000	45,500,000	1.6	6.5	9.0
Pennsylvania . . .	8,800,000	16,200,000	22,100,000	3.9	4.5	5.1
Massachusetts . . .	1,200,000	12,700,000	19,000,000	1.2	8.0	10.5
Maryland	3,100,000	5,400,000	2,300,000	5.3	7.0	2.4
Virginia	2,900,000	10,200,000	9,000,000	2.1	6.0	4.3
Ohio	3,300,000	4,000,000	10,200,000	1.7	1.5	3.3
Various	15,800,000	80,600,000	109,500,000	1.3	3.3	3.3
Total . .	39,900,000	158,200,000	217,600,000	1.8	4.1	4.3

The local debts of 1880 were made up thus :—

	State	City, &c.	Total
	£	£	£
New York . . .	1,600,000	43,900,000	45,500,000
Pennsylvania . .	2,600,000	19,500,000	22,100,000
Massachusetts .	4,200,000	14,800,000	19,000,000
Maryland . . .	1,600,000	700,000	2,300,000
Virginia . . .	6,100,000	2,900,000	9,000,000
Ohio	1,200,000	9,000,000	10,200,000
Missouri . . .	3,400,000	8,400,000	11,800,000
New Jersey . .	100,000	10,200,000	10,300,000
Louisiana . . .	4,900,000	4,100,000	9,000,000
Illinois	...	9,400,000	9,400,000
Tennessee . . .	5,700,000	2,100,000	7,800,000
Various	15,700,000	45,500,000	61,200,000
Total . .	47,100,000	170,500,000	217,600,000

The amount of state debt, exclusive of city and county debts, in 1888 was as follows :—

	Debt, £	Shillings per Inhabitant
New York	1,400,000	5.0
Pennsylvania . . .	3,100,000	12.0
Massachusetts . . .	6,500,000	3.1
Virginia	6,400,000	3.0
Tennessee . . .	3,600,000	2.0
Louisiana . . .	2,500,000	2.1
North Carolina . .	3,000,000	1.8
Various	19,700,000	10.0
Total . .	46,200,000	15.0

In 1883 the public debt of 138 cities and towns summed up 99 millions sterling.

LONDON

In 1885 London had 555,000 houses, with 4,120,000 inhabitants, covering an area of 117 square miles or 75,000 acres, that is 56 persons per acre. There were 400,000 foot-passengers and 80,000 vehicles passing daily over the bridges, and 370,000 passengers in the Underground Railway. There were 1830 miles of streets, and 2300 miles of sewers, the latter ranging from 1 foot to 12 feet in diameter. The sewage reservoirs (12 miles below London) discharged 150 million gallons daily into the Thames at ebb-tide. Water supply was 140 million gallons daily, or 34 per inhabitant, for which the companies charged £1,500,000, or 1½d. (1.60) per ton. Gas consumption amounted to 20 milliards of cubic feet, at 3s. per 1000 feet, say £3,000,000 per annum, consuming 2 millions tons coal, and conveyed by 2500 miles of pipes some 4 feet in diameter. Fire-brigade had 58 engines, 124 escapes, 580 firemen, costing £100,000 per annum, and using 17 million gallons water. Police, 13,000 men, or 1 in 316 inhabitants. Parks, 42, covering 4490 acres. Markets, 14, covering 15 acres ; the meat consumption including 330,000 oxen, 2,100,000 sheep, and amounting altogether to 210,000 tons per annum. There are 220 deaths and 360 births daily, being a natural increase of 140 persons, but the increase of population averages 200 daily, the difference being caused by immigration. Of all deaths, 21 per cent. occur in hospital, and almost 4 per cent. (3.7) are violent deaths, say ten daily. There are 5550 coroners' inquests yearly, and 3580 persons killed or wounded by cabs. About 120 adults are missing every year, and 50 dead bodies are not identified. The number of stray dogs taken up is 29,500 per annum. The foreign trade of London, that is, imports and exports, exceeds 200 millions sterling per annum. There are 11,000 cabs and 2000 omnibuses, which carry 78 million passengers yearly. The growth of the Metropolis has been as follows :—

Year	Population	Houses	Miles of Streets	Valuation, £
1801 . . .	959,000	130,000	470	3,700,000
1821 . . .	1,379,000	170,000	610	5,300,000
1841 . . .	1,948,000	256,000	905	9,600,000
1861 . . .	2,804,000	369,000	1,290	16,800,000
1885 . . .	4,120,000	555,000	1,830	35,500,000

Municipal expenditure in 1881 was £11,000,000, and debt £21,000,000. Paris, with half the population, spends the same amount yearly, and has a debt of £90,000,000 sterling. The rental valuation of London in 1888 was £38,100,000.

LOTTERIES

The Spanish lottery gave a net profit of £403,000 in 1882.

The Italian and Austrian lotteries produced as follows :—

	Italy		Austria	
	1868	1877	1868	1877
	£	£	£	£
Receipts . .	2,420,000	2,705,000	1,380,000	2,172,000
Expenses . .	1,670,000	1,713,000	850,000	1,160,000
Profit . .	750,000	992,000	530,000	1,012,000

M.

MACHINERY

The following examples show the economy of labour resulting from machinery :—

1. Arkwright's spinning-jenny enabled one operative in 1815 to produce as much yarn as 200 could a few years before.

2. The crane of Cologne Cathedral in 1870, with two men, did the same work in one hour, in lifting stone, as required 60 men to work 12 hours in the Middle Ages ; that is, one man now is equal to 180 of the olden time.

3. The American boot-making machine enables one man to turn out 300 pair of boots daily ; one factory near Boston makes as many boots as 32,000 bootmakers in Paris. In 1880 there were 3100 of these machines at work, producing 150 million pair of boots yearly.

4. Altmann's American reaper cuts and binds grain at 45 minutes per acre. D. Glynn of California cuts, threshes, winnows, and bags with each of his machines 60 acres of grain daily.

5. The United States in 1888 produced 600,000 sewing-machines, which could do the work of 7,200,000 women.

6. In the Western States of America one man can raise as much wheat as will feed 1000 persons for 12 months ; a second can thresh, winnow, and bag it, and a third convey it to market.

7. A girl 12 years of age in a Lancashire mill can turn out 35 yards of printed calico daily, her work in one year sufficing to clothe yearly 1200 persons in the East.

The export of machinery from Great Britain is large. In 1888 Russia took 300 steam-threshers and 250 portable steam-engines.

The Trade Returns show the value of British machinery exported thus :—

	£		£
1853	2,000,000	1870	5,300,000
1860	3,800,000	1888	13,000,000

MAIZE

The crop of 1887 was stated thus :—

	Acres	Bushels
France	1,480,000	26,000,000
Russia	1,360,000	13,000,000
Austria	5,410,000	90,000,000
Italy	4,680,000	75,000,000
Spain	2,000,000	40,000,000
Portugal	200,000	4,000,000
Roumania, &c.	2,000,000	40,000,000
Europe	27,130,000	288,000,000
United States	72,390,000	1,412,000,000
Canada	180,000	9,000,000
Australia	250,000	7,000,000
Egypt	680,000	10,000,000
Algeria	400,000	10,000,000
Argentina	1,700,000	17,000,000
Total	102,730,000	1,753,000,000

The United States crop in 1888 reached 1988 million bushels, or 49,700,000 tons. Spallart estimated the crop for the whole world thus :—

Year	Millions of Bushels
1871–80	1,528
1883–84	2,035
1887	1,979

MANUFACTURES

The following table shows approximately the value of all manufactures in 1888 :—

	Million £ Sterling Yearly							Per Inhabitant, £
	Textiles	Hardware	Clothing	Beer and Spirits	Leather	Sundries	Total	
U. Kingdom	170	155	66	75	42	312	820	21.5
France	108	42	64	21	52	198	485	12.7
Germany	82	91	53	71	53	233	583	12.3
Russia	52	14	51	20	51	175	363	4.3
Austria	36	15	30	23	39	110	253	5.1
Italy	21	4	24	4	17	51	121	4.1
Spain	16	4	16	1	12	36	85	5.0
Portugal	2	1	3	...	3	7	16	3.6
Sweden	2	6	6	6	8	22	50	10.5
Norway	1	1	2	3	4	8	19	9.5
Denmark	1	1	3	4	6	11	26	13.0
Holland	3	1	6	5	6	14	35	8.0
Belgium	16	17	12	13	6	38	102	17.0
Switzerland	11	2	3	2	2	12	32	11.0
Europe	521	354	339	248	301	1,227	2,990	9.0
U. States	112	194	98	61	104	874	1,443	24.0
Australia	7	15	4	3	6	6	41	11.5
Total	640	563	441	312	411	2,107	4,474	11.2

The latest official return of the manufactures of Canada gives a total of 64 millions sterling. The following table shows approximately the value of manufactures produced yearly in the several countries at various dates :—

	Millions £ Sterling					
	1780	1800	1820	1840	1860	1888
U. Kingdom	177	230	290	387	577	820
France	147	190	220	264	380	485
Germany	50	60	85	150	310	583
Russia	10	15	20	40	155	363
Austria	30	50	80	142	200	253
Italy	10	15	25	40	80	121
Spain	10	20	30	45	60	85
Belgium	...	...	...	60	90	102
U. States	15	25	55	96	392	1,443
Various	31	45	60	90	160	363
Total	480	650	865	1,314	2,404	4,618

Hardware.—The hardware manufactures of the world may be approximately summed up thus :—

	Millions £ Sterling					
	Iron	Steel	Copper	Lead	Tin	Zinc	Total
U. Kingdom	50	84	10	3	5	3	155
France	20	16	3	1	1	1	42
Germany	40	38	3	3	1	6	91
Russia	5	7	1	1	...	...	14
Austria	6	8	...	1	...	...	15
Italy	3	1	...	...	...	...	4
Spain	3	1	...	...	...	...	4
Sweden	4	2	...	...	...	...	6
Belgium	8	6	1	1	1	...	17
United States	72	95	14	7	4	2	194
Various	17	20	3	1	1	1	43
Total	228	278	35	18	13	13	585

For details regarding the above metals, see each under its own title. The total value of hardware manufactures at various dates was approximately as follows :—

Year	Millions £ Sterling											
	U. Kingdom	France	Germany	Russia	Austria	Italy	Spain	Sweden	Belgium	U. States	Various	Total
1780. . .	15	8	3	2	2	1	1	1	...	2	2	37
1800. . .	20	9	4	3	3	1	1	1	...	3	3	48
1820. . .	30	10	6	4	4	2	2	2	...	7	5	72
1840. . .	40	12	7	5	5	2	2	3	2	10	7	95
1860. . .	85	30	40	11	12	3	3	4	9	29	17	243
1888. . .	155	42	91	14	15	4	4	6	17	194	43	585

The production of the principal metals at various dates was approximately as follows :—

Year	Tons					
	Iron	Copper	Lead	Tin	Zinc	Total
1780 .	270,000	6,000	50,000	2,000	2,000	330,000
1800 .	460,000	8,000	60,000	3,000	3,000	534,000
1820 .	1,010,000	10,000	70,000	4,000	3,000	1,097,000
1840 .	2,680,000	25,000	120,000	6,000	12,000	2,843,000
1860 .	7,180,000	70,000	220,000	8,000	65,000	7,543,000
1888 .	24,800,000	190,000	410,000	35,000	240,000	25,675,000

It appears that the production of metals has multiplied fifty-fold since 1800.

Textile Manufactures.—The consumption of fibre by all nations has been approximately as follows :—

Year	Millions of Lbs.						
	Cotton	Wool	Flax	Hemp	Jute	Silk	Total
1780 .	220	440	500	350	...	30	1,540
1800 .	303	460	600	400	...	30	1,793
1820 .	402	520	700	450	...	33	2,105
1840 .	1,210	694	800	500	...	35	3,239
1850 .	1,335	886	900	600	60	37	3,818
1860 .	2,451	1,074	925	700	130	40	5,320
1870 .	2,675	1,579	1,200	750	410	42	6,656
1880 .	3,501	1,915	1,120	820	900	45	8,301
1887 .	4,433	2,242	1,230	880	1,310	50	10,145

Reducing to tons the total weight of fibre consumed in 100 years down to 1880, we find it was approximately as follows :—

	Tons Aggregate						
	Cotton	Wool	Flax	Hemp	Jute	Silk	Total
1781–1800	2,200,000	4,100,000	4,900,000	3,400,000	...	270,000	14,870,000
1801–20	2,500,000	4,400,000	5,800,000	3,800,000	...	270,000	16,770,000
1821–40	4,560,000	5,500,000	6,700,000	4,200,000	...	300,000	21,260,000
1841–50	5,220,000	3,600,000	3,700,000	2,500,000	200,000	160,000	15,380,000
1851–60	8,260,000	4,400,000	4,100,000	2,900,000	600,000	170,000	20,430,000
1861–70	8,190,000	5,900,000	4,800,000	3,200,000	2,000,000	170,000	24,260,000
1871 80	12,860,000	7,700,000	5,200,000	3,400,000	3,500,000	180,000	32,840,000
100 years	43,790,000	35,600,000	35,200,000	23,400,000	6,300,000	1,520,000	145,810,000

The total output of textile manufactures in 107 years was approximately as follows :—

Period	Millions £ Sterling										
	U. Kingdom	France	Germany	Russia	Austria	Italy	Spain	Belgium	Various	U. States	Total
1781–1800 . .	620	480	160	70	100	50	90	...	110	50	1,730
1801–20 . .	980	680	210	90	140	70	120	...	160	80	2,530
1821–40 . .	1,538	921	334	172	243	101	172	60	192	208	3,941
1841–50 . .	970	634	318	250	199	74	94	54	101	261	2,955
1851–60 . .	1,265	740	396	294	242	94	115	59	126	375	3,706
1861–70 . .	1,546	958	486	352	279	128	134	108	163	628	4,782
1871–80 . .	1,872	945	607	486	331	156	158	151	198	706	5,610
1881–87 . .	1,218	672	520	361	256	131	110	106	214	651	4,239
107 years . .	10,009	6,030	3,031	2,075	1,790	804	993	538	1,264	2,959	29,493

	1781–1800	1801–20	1821–40	1841–50	1851–60	1861–70	1871–80	1881–87	Total
Cottons . .	140	660	1,506	1,055	1,440	1,810	2,234	1,782	10,627
Woollens . .	1,040	1,100	1,280	1,064	1,243	1,661	1,921	1,366	10,675
Linens. . .	255	370	550	372	431	544	575	397	3,494
Silks . .	265	340	480	311	406	522	559	475	3,358
Sundries . .	30	60	125	153	186	245	321	219	1,339
Total .	1,730	2,530	3,941	2,955	3,706	4,782	5,610	4,239	29,493

The value of all textile manufactures in each country at various dates from 1780 was as follows, approximately:—

	Millions £ Sterling								
	1780	1800	1820	1840	1850	1860	1870	1880	1887
U. Kingdom .	26	36	67	92	108	143	174	184	170
France . . .	21	27	42	52	70	88	109	110	108
Germany . .	7	9	12	22	30	39	53	72	82
Russia . . .	3	4	5	14	22	29	40	49	52
Austria . . .	4	6	9	18	20	24	29	34	36
Italy	2	3	4	6	9	13	15	20	21
Spain . . .	4	5	7	11	12	14	15	17	16
Belgium . .	...	...	...	8	11	12	17	17	16
Switzerland,&c.	5	6	7	8	10	13	15	17	15
Europe . . .	72	96	153	231	292	375	467	520	516
United States .	2	3	5	15	28	45	70	98	112
Total .	74	99	158	246	320	420	537	618	628

The value of fibre consumed by various nations since 1840 was approximately as follows:—

UNITED KINGDOM

Period	Millions £ Sterling				
	Cotton	Wool	Silk	Flax, Hemp, &c.	Total
1841–50 . .	112	91	65	73	341
1851–60 . .	241	119	68	66	494
1861–70 . .	430	140	55	91	716
1871 80 . .	390	156	32	108	686
1881–87 . .	252	97	16	60	425
47 years . .	1,425	603	236	398	2,662

FRANCE

	Cotton	Wool	Silk	Flax, Hemp, &c.	Total
1841–50 . .	33	86	86	63	268
1851–60 . .	50	96	120	53	319
1861–70 . .	95	111	166	62	434
1871–80 . .	71	113	125	70	379
1881–87 . .	56	72	72	40	240
47 years . .	305	478	569	288	1,640

GERMANY

	Cotton	Wool	Silk	Flax, Hemp, &c.	Total
1841–50 . .	23	53	13	31	120
1851–60 . .	40	65	18	29	152
1861–70 . .	81	73	23	33	210
1871–80 . .	86	81	40	40	247
1881–87 . .	73	57	38	25	193
47 years . .	303	329	132	158	922

RUSSIA

	Cotton	Wool	Silk	Flax, Hemp, &c.	Total
1841–50 . .	14	49	1	30	94
1851–60 . .	22	54	2	33	111
1861–70 . .	40	56	4	42	142
1871–80 . .	62	72	6	53	193
1881–87 . .	54	41	5	37	137
47 years . .	192	272	18	195	677

AUSTRIA

	Cotton	Wool	Silk	Flax, Hemp, &c.	Total
1841–50 . .	11	33	6	28	78
1851–60 . .	22	35	8	26	91
1861–70 . .	41	34	11	30	116
1871–80 . .	49	36	14	36	135
1881–87 . .	38	25	10	24	97
47 years . .	161	163	49	144	517

ITALY

Period	Millions £ Sterling				
	Cotton	Wool	Silk	Flax, Hemp, &c.	Total
1841–50 . .	3	13	6	10	32
1851–60 . .	6	15	7	11	39
1861–70 . .	15	17	11	14	57
1871–80 . .	23	20	9	17	69
1881–87 . .	25	12	5	12	54
47 years . .	72	77	38	64	251

SPAIN

	Cotton	Wool	Silk	Flax, Hemp, &c.	Total
1841–50 . .	6	17	2	9	34
1851–60 . .	12	22	3	7	44
1861–70 . .	21	24	3	7	55
1871–80 . .	26	26	4	7	63
1881–87 . .	21	14	3	5	43
47 years . .	86	103	15	35	239

BELGIUM

	Cotton	Wool	Silk	Flax, Hemp, &c.	Total
1841–50 . .	7	5	...	6	18
1851–60 . .	8	6	1	7	22
1861–70 . .	15	18	1	11	45
1871–80 . .	15	29	3	16	63
1881–87 . .	13	15	2	13	43
47 years . .	58	73	7	53	191

SCANDINAVIA, SWITZERLAND, &c.

	Cotton	Wool	Silk	Flax, Hemp, &c.	Total
1841–50 . .	9	19	7	7	42
1851–60 . .	15	23	9	7	54
1861–70 . .	26	29	3	10	68
1871–80 . .	36	29	6	10	81
1881–87 . .	60	18	4	7	89
47 years . .	146	118	29	41	334

UNITED STATES

	Cotton	Wool	Silk	Flax, Hemp, &c.	Total
1841–50 . .	49	30	2	7	88
1851–60 . .	84	38	4	12	138
1861–70 . .	223	62	14	17	316
1871–80 . .	157	101	15	24	297
1881–87 . .	150	83	20	16	269
47 years . .	663	314	55	76	1,108

THE WORLD

	Cotton	Wool	Silk	Flax, Hemp, &c.	Total
1841–50 . .	267	396	188	264	1,115
1851–60 . .	500	473	240	251	1,464
1861–70 . .	987	564	291	317	2,159
1871–80 . .	915	663	254	381	2,213
1881–87 . .	742	434	175	239	1,590
47 years . .	3,411	2,530	1,148	1,452	8,541

The value of goods manufactured from the above fibres in 47 years was approximately, in millions sterling:—

Period	Cottons	Woollens	Linens	Silks	Hemp, &c.	Total
1841–50 . .	1,055	1,064	372	311	153	2,955
1851–60 . .	1,440	1,243	431	406	186	3,706
1861–70 . .	1,810	1,661	544	522	245	4,782
1871–80 . .	2,234	1,921	575	559	321	5,610
1881–87 . .	1,782	1,366	397	475	219	4,239
47 years . .	8,321	7,255	2,319	2,273	1,124	21,292

	Cottons	Woollens	Linens	Silks	Hemp, &c.	Total
	Millions £ Aggregate					
U. Kingdom	3,726	1,768	572	435	370	6,871
France . . .	771	1,368	505	1,132	173	3,949
Germany . .	727	948	290	280	82	2,327
Russia . . .	461	780	260	37	205	1,743
Austria . .	382	484	217	99	125	1,307
Italy . . .	163	195	90	72	63	583
Spain . . .	202	293	58	32	26	611
Belgium . .	141	190	115	17	15	478
Scandinavia .	52	126	...	...	...	178
U. States . .	1,411	911	132	115	52	2,621
Various . .	285	192	80	54	13	624
Total .	8,321	7,255	2,319	2,273	1,124	21,292

The following table shows approximately the value of goods manufactured in each decade :—

UNITED KINGDOM

Period	Cottons	Woollens	Linens	Silks	Hemp, Jute, &c.	Total
	Millions £ Aggregate					
1841–50	469	249	103	108	41	970
1851–60	677	311	113	115	49	1,265
1861–70	813	412	147	96	78	1,546
1871–80	1,071	476	132	71	122	1,872
1881–87	696	320	77	45	80	1,218
47 years	3,726	1,768	572	435	370	6,871

FRANCE

1841–50	136	233	105	140	20	634
1851–60	158	252	105	200	25	740
1861–70	180	325	120	298	35	958
1871–80	165	328	110	288	54	945
1881–87	132	230	65	206	39	672
47 years	771	1,368	505	1,132	173	3,949

GERMANY

1841–50	92	142	50	22	12	318
1851–60	125	171	55	30	15	396
1861–70	147	215	65	41	18	486
1871–80	195	235	70	85	22	607
1881–87	168	185	50	102	15	520
47 years	727	948	290	280	82	2,327

RUSSIA

1841–50	56	132	25	2	35	250
1851–60	69	141	40	4	40	294
1861–70	75	166	60	6	45	352
1871–80	138	211	75	12	50	486
1881–87	123	130	60	13	35	361
47 years	461	780	260	37	205	1,743

AUSTRIA

1841–50	44	90	35	10	20	199
1851–60	69	93	40	15	25	242
1861–70	77	107	45	20	30	279
1871–80	108	110	55	28	30	331
1881–87	84	84	42	26	20	256
47 years	382	484	217	99	125	1,307

ITALY

Period	Cottons	Woollens	Linens	Silks	Hemp, Jute, &c.	Total
	Millions £ Aggregate					
1841–50	12	32	10	10	10	74
1851–60	18	34	15	15	12	94
1861–70	27	46	20	20	15	128
1871–80	51	49	25	16	15	156
1881–87	55	34	20	11	11	131
47 years	163	195	90	72	63	583

SPAIN

1841–50	24	47	14	4	5	94
1851–60	36	56	13	5	5	115
1861–70	39	71	12	6	6	134
1871–80	57	75	11	9	6	158
1881–87	46	44	8	8	4	110
47 years	202	293	58	32	26	611

BELGIUM

1841–50	28	11	10	3	2	54
1851–60	25	13	15	3	3	59
1861–70	29	47	25	4	3	108
1871–80	33	75	35	4	4	151
1881–87	26	44	30	3	3	106
47 years	141	190	115	17	15	478

UNITED STATES

1841–50	160	81	10	5	5	261
1851–60	218	117	20	10	10	375
1861–70	376	190	30	20	12	628
1871–80	337	282	42	30	15	706
1881–87	320	241	30	50	10	651
47 years	1,411	911	132	115	52	2,621

The net product of these manufactures in 47 years was approximately thus :—

	Fibre	Manufactures	Net Product
	Millions £ Sterling		
Cotton	3,411	8,321	4,910
Wool	2,530	7,255	4,725
Flax	963	2,319	1,356
Silk	1,148	2,273	1,125
Hemp and jute .	489	1,124	635
Total . .	8,541	21,292	12,751

The net product to the several countries was as follows :—

	Fibre	Manufactures	Net Product
	Millions £ Sterling		
United Kingdom	2,662	6,871	4,209
France	1,640	3,949	2,309
Germany . . .	922	2,327	1,405
Russia	677	1,743	1,066
Austria	517	1,307	790
Italy	251	583	332
Spain	239	611	372
Belgium . . .	191	478	287
United States . .	1,108	2,621	1,513
Various	334	802	468
Total . .	8,541	21,292	12,751

The weight of fibre consumed in 1888 was approximately as follows :—

	Millions of Lbs.						Lbs. per Inhabitant
	Cotton	Wool	Flax	Silk	Hemp and Jute	Total	
United Kingdom . .	1,530	412	191	3	690	2,826	75
France	310	421	203	15	246	1,195	41
Germany	378	349	143	7	90	967	20
Russia	369	145	240	1	140	895	11
Austria	235	90	127	2	130	584	16
Italy	152	52	60	1	120	385	13
Spain	120	60	22	1	20	223	13
Belgium . . .	52	100	112	...	20	284	48
Switzerland, &c. . .	76	75	40	1	30	222	12
Europe	3,222	1,704	1,138	31	1,486	7,581	24
United States . . .	1,010	434	92	4	330	1,870	30
India, &c. . . .	313	104	...	15	374	806	...
Total . .	4,545	2,242	1,230	50	2,190	10,257	...

The value of textiles produced in 1887 was approximately as follows :—

	Millions £ Sterling					
	Cottons	Woollens	Linens	Silks	Sundries	Total
U. Kingdom .	101	43	9	6	11	170
France . .	19	46	9	29	5	108
Germany . . .	23	35	7	15	2	82
Russia . . .	22	14	9	2	5	52
Austria . . .	14	9	6	4	3	36
Italy	9	5	3	2	2	21
Spain	7	6	1	1	1	16
Scandinavia . .	2	2	...	...	1	5
Belgium . . .	3	6	5	1	1	16
Switzerland . .	3	1	...	6	...	10
Europe . . .	203	167	49	66	31	516
United States .	60	39	4	7	2	112
India, &c. . .	16	1	...	23	8	48
Total . .	279	207	53	96	41	676

The consumption of textile manufactures in 1888 was approximately as follows :—

	Millions £ Sterling					
	Cottons	Woollens	Silks	Linens	Hemp and Jute	Total
U. Kingdom .	30	27	15	3	9	84
France . . .	18	31	22	6	4	81
Germany . . .	20	25	6	7	2	60
Russia . . .	28	14	2	9	4	57
Austria . . .	14	9	4	5	2	34
Italy	11	7	2	3	2	25
Spain	7	7	2	1	1	18
Scandinavia . .	4	5	1	1	1	12
Holland . . .	2	1	1	1	1	6
Belgium . . .	3	6	1	1	1	12
Other countries .	3	5	1	2	5	16
Europe . . .	140	137	57	39	32	405
United States .	66	44	14	8	5	137
Other countries .	73	26	25	6	6	136
Total . .	279	207	96	53	43	678

UNITED KINGDOM

The value of British manufactures, that is, of the gross annual product, without deducting raw material or anything else, has been estimated as follows at various epochs :—

Year	Millions £	Writers
1783 . . .	57	M'Pherson
1803-10 . .	105	Eden, Stevenson, &c.
1835 . . .	149	Lavergne
1850 . . .	180	Poole
1888 . . .	820	Mulhall

The earlier estimates were too low, as they omitted beer, flour, clothing, and other large items.

If we study the consumption of raw material, and the prices current at the several periods, we may construct the following approximate table :—

	Millions £ Sterling				
	1780	1810	1840	1860	1888
Woollens . . .	17	18	22	34	43
Cottons . . .	2	20	48	81	101
Linens, jute, &c. .	4	13	13	16	20
Silks	3	5	9	12	6
Leather . . .	11	14	18	30	42
Clothing . . .	20	30	40	55	66
Liquor and food .	55	60	87	94	116
Hardware . . .	15	25	40	85	155
Furniture . . .	5	7	10	15	20
Printing . . .	1	2	3	9	16
Sundries . . .	44	66	97	146	235
Total . .	177	260	387	577	820

The textile manufactures have been greatly developed in the present century, the consumption of fibre in the United Kingdom showing thus :—

Year	Millions of Lbs. Weight					
	Cotton	Wool	Flax	Hemp	Jute	Total
1801 . . .	54	117	48	82	...	301
1810 . . .	114	123	60	107	...	404
1820 . . .	123	125	87	95	...	430
1830 . . .	246	150	138	59	...	593
1840 . . .	448	173	210	67	...	898
1850 . . .	565	185	249	122	42	1,163
1860 . . .	1,140	234	228	78	86	1,766
1870 . . .	1,101	309	291	160	324	2,185
1880 . . .	1,404	338	227	165	404	2,538
1887 . . .	1,499	378	190	196	494	2,757

The following table shows the approximate value of all British and Irish textile industries during the past 100 years at various dates :—

Year	Millions £ Sterling					
	Cottons	Woollens	Linens	Silks	Jute, &c.	Total
1780	2	17	2	3	2	26
1800	8	18	4	4	2	36
1810	20	18	5	5	8	56
1820	33	19	6	7	2	67
1830	39	20	8	8	2	77
1840	48	22	11	9	2	92
1850	49	28	13	12	6	108
1860	81	34	12	12	4	143
1870	91	48	14	9	12	174
1880	105	48	12	7	12	184
1887	101	43	9	6	11	170

The total consumption of fibre, excluding silk, in the factories during forty-five years, down to 1885, was as follows :—

	Tons		
	1841–70	1871–85	Total
Cotton	9,650,000	8,950,000	18,600,000
Wool	3,150,000	2,430,000	5,580,000
Flax and hemp .	4,600,000	2,700,000	7,300,000
Jute	1,300,000	2,700,000	4,000,000
Total . .	18,700,000	16,780,000	35,480,000

The output of stuffs and cloths in English statute miles was approximately as follows :—

	1841–70	1871–85	Total
Cottons	43,750,000	45,620,000	89,370,000
Woollens . . .	3,420,000	2,860,000	6,280,000
Linens	5,460,000	2,500,000	7,960,000
Jute	1,700,000	2,100,000	3,800,000
Total . .	54,330,000	53,080,000	107,410,000

The output of fifteen years ending 1885 was almost equal to that of thirty years ending 1870.

In the following table are shown the cost of fibre, and value of the manufactures :—

Period	Millions £ Sterling		
	Raw Fibre	Manufactures	Net Result
1841–50 . . .	341	970	629
1851–60 . . .	494	1,265	771
1861–70 . . .	716	1,546	830
1871–80 . . .	686	1,872	1,186
1881–87 . . .	425	1,218	793
47 years . . .	2,662	6,871	4,209

	Millions £ Sterling		
	Raw fibre	Manufactures	Net Result
Cotton	1,425	3,726	2,301
Wool	603	1,768	1,165
Silk	236	435	199
Flax	240	572	332
Hemp, jute . .	158	370	212
Total . .	2,662	6,871	4,209

The annual product of each operative, as well in the

gross as the net result, after deducting cost of raw material, are shown as follows :—

	Gross, £	Net, £
Cotton	178	101
Woollen . . .	155	108
Linen	95	60
Jute	230	154
Silk	161	99

In the preceding tables, the value of manufactures includes not only stuffs, but also yarns exported to other countries.

The export of yarn showed thus :—

Year	Millions of Lbs. Yarn				
	Cotton	Woollen	Linen	Jute	Total
1841 . . .	119	4	18	...	141
1851 . . .	144	14	19	...	177
1861 . . .	178	28	26	2	234
1871 . . .	194	44	36	14	288
1885 . . .	246	44	17	31	338
1889 . . .	252	45	14	34	345

	Aggregate in Tons Yarn				
	Cotton	Woollen	Linen	Jute	Total
1841–50	580,000	40,000	80,000	...	700,000
1851–60	710,000	90,000	100,000	...	900,000
1861–70	830,000	160,000	135,000	40,000	1,165,000
1871–80	990,000	180,000	120,000	70,000	1,360,000
1881–89	1,010,000	175,000	70,000	105,000	1,360,000
49 years	4,120,000	645,000	505,000	215,000	5,485,000

The following table shows the consumption of fibre in the United Kingdom, and in the whole world in 1840 and 1887.

	1840		1887	
	Millions of Lbs.		Millions of Lbs.	
	United Kingdom	The World	United Kingdom	The World
Cotton . . .	448	1,210	1,499	4,433
Wool	173	694	378	2,242
Flax	210	800	190	1,230
Hemp	67	500	196	880
Jute	...	...	494	1,310
Total . .	898	3,204	2,757	10,095

In 1840 the United Kingdom consumed 28 per cent., and in 1883 27½ per cent. of all the fibre in the world. As regards iron, leather, timber, &c., details of these industries will be found under their respective titles.

The gross value of British manufactures has increased in far greater ratio than the number of hands employed, as we see by comparing the Factory Returns, and Booth's Digest of the Censuses, with the approximate values already stated, viz. :—

Year	Engaged in Manufactures			Manu-factures, Millions £	Value per Ope-rative, £
	In Mills	Artisans	Total		
1840 . .	424,000	2,713,000	3,137,000	400	127
1860 . .	776,000	3,388,000	4,164,000	583	140
1888 . .	1,034,000	3,501,000	4,535,000	820	181

Owing to machinery, two workpeople can now produce manufactures to the same value as three could in 1841 ; but if the volume, instead of the value of merchandise were considered, we should find that two now produce more than five did fifty years ago.

In 1835 the textile factories had 355,000 hands :—

	Cotton	Woollen	Silk	Flax, &c.	Total
England .	183,000	66,000	30,000	16,000	295,000
Scotland .	33,000	3,000	1,000	13,000	50,000
Ireland . .	4,000	2,000	...	4,000	10,000
U. Kingdom	220,000	71,000	31,000	33,000	355,000
Males . .	101,000	37,000	10,000	10,000	158,000
Females . .	119,000	34,000	21,000	23,000	197,000
Total .	220,000	71,000	31,000	33,000	355,000

In 1885 the factories had 1,034,000 hands, as follows :—

	Men	Women	Children	Total
England	301,000	437,000	76,000	814,000
Scotland	41,000	101,000	10,000	152,000
Ireland	19,000	44,000	5,000	68,000
United Kingdom .	361,000	582,000	91,000	1,034,000
Cotton	172,000	282,000	50,000	504,000
Woollen	113,000	146,000	23,000	282,000
Flax and hemp . .	33,000	80,000	9,000	122,000
Jute	11,000	26,000	5,000	42,000
Silk	12,000	28,000	3,000	43,000
Hosiery, &c. . .	20,000	20,000	1,000	41,000
Total . .	361,000	582,000	91,000	1,034,000

The value of hardware manufactures may be estimated approximately as follows :—

	Tons	Value, £
Pig iron exported . . .	1,200,000	3,000,000
Iron wares, home use . .	1,800,000	27,000,000
Steel exported	300,000	3,000,000
Steel, home manufactures .	2,700,000	81,000,000
Iron wares exported . .	2,000,000	20,000,000
Lead manufactures . . .	100,000	3,000,000
Copper	100,000	10,000,000
Tin	20,000	5,000,000
Zinc	70,000	2,800,000
Total . .	...	154,800,000

FRANCE

The value of manufactures produced annually has been estimated as follows :—

Year	Millions £ Sterling	Writer
1788	37	Tolosan
1819	73	Chaptal
1835	158	....
1878	390	Kolb
1888	485	Mulhall

Several items seem to have been omitted in the early estimates. The following is an approximate table :—

	Millions £ Sterling			
	1788	1835	1868	1888
Textiles . . .	21	47	96	108
Hardware . . .	8	10	31	42
Food . . .	52	82	112	114
Clothing . . .	22	44	56	64
Leather . . .	20	24	40	52
Sundries . . .	24	57	92	105
Total . .	147	264	427	485

The tables of Tolosan and Chaptal showed as follows :—

	1788	1819
	£	£
Textiles . . .	17,400,000	27,000,000
Hardware . .	1,400,000	8,400,000
Jewellery . . .	4,500,000	5,000,000
Skins	2,600,000	5,700,000
Sundries . . .	11,300,000	26,700,000
Total . .	37,200,000	72,800,000

The following estimate of French manufactures was published in 1835 :—

	Number	Value, £
Mills	82,900	49,800,000
Factories . . .	38,300	76,600,000
Foundries . . .	4,425	10,600,000
Steam-engines . .	1,448	2,900,000
Workshops and waggons . .	...	17,700,000
Total . . .	...	157,600,000

Product, £		Balance-sheet, £	
Silks	9,600,000	Raw material .	56,100,000
Woollens . .	16,100,000	Wages . . .	60,800,000
Cottons . . .	16,600,000	Wear and tear .	20,900,000
Linens . . .	12,000,000	Interest on capital	13,100,000
Iron	14,000,000	Net profit . .	6,700,000
Sundries . . .	89,300,000		
Total . .	157,600,000	Total . .	157,600,000

An incomplete official report in 1854 showed the following averages for seven previous years :—

	Factories	Engines	Operatives	Manufactures, £
Textiles .	12,858	934	695,000	65,600,000
Food . .	41,762	429	136,000	62,800,000
Sundries .	4,687	426	118,000	9,800,000
Total .	59,307	1,789	949,000	138,200,000

Another report in 1866 gave the average for five preceding years thus :—

	Factories	Engines	Operatives	Manufactures, £
Textiles .	12,480	777	685,000	93,300,000
Food . .	52,845	2,131	174,000	112,100,000
Sundries .	8,553	1,369	179,000	22,200,000
Total .	73,878	4,277	1,038,000	227,600,000

Kolb mentions a report in 1878 showing 123,000 factories employing 1,783,000 operatives, turning out products to the value of 390 millions sterling per annum, of which textiles stood for 105 millions sterling.
Respecting these factories we find :—

Worked by	Number	Horse-Power
Steam . . .	16,500	220,000
Water . . .	52,700	298,000
Wind . . .	11,300	40,000
Total . .	80,500	558,000

The *Statesman's Year-Book* for 1890 gives the following :—

	Factories	Operatives	Horse-Power	Spindles	Power-Looms	Hand-Looms
Cotton	1,000	119,000	62,400	5,100,000	72,000	30,000
Wool	1,926	115,000	42,800	3,300,000	46,000	28,000
Silk	1,172	110,000	...	1,100,000	51,000	56,000
Total . .	4,098	344,000	105,200	9,500,000	169,000	114,000

There are also 365 flax, hemp, and jute factories, consuming 310,000 tons fibre yearly.

In 1875 an estimate of French manufactures was published, differing but slightly from the figures given by Kolb ; it was as follows :—

	Hands	Product, £
Textiles . . .	770,000	137,000,000
Flour-mills . . .	120,000	80,000,000
Clothing . . .	156,000	52,000,000
Leather . . .	300,000	36,000,000
Metals and minerals .	330,000	36,000,000
Soap, candles, &c. .	100,000	30,000,000
Sugar, beer, &c. .	70,000	26,000,000
Fancy goods . .	90,000	19,000,000
Total . .	1,936,000	416,000,000

The value of textile manufactures was approximately as follows, in millions £ sterling :—

	1810	1840	1860	1880
Woollens . . .	16	17	31	45
Cottons . . .	4	12	16	16
Silks . . .	5	9	24	29
Linens, &c. . .	7	12	14	17
Total . .	32	50	85	107

The balance-sheet of textile industries for forty-seven years, ending 1887, may be summed up thus :—

		Millions £	
	Fibre	Manufactures	Net Product
Silk . . .	569	1,132	563
Cotton . . .	305	771	466
Wool . . .	478	1,368	890
Flax, &c. . .	288	678	390
Total .	1,640	3,949	2,309
1841–50 . .	268	634	366
1851–60 . .	319	740	421
1861–70 . .	434	958	524
1871–80 . .	379	945	566
1881–87 . .	240	672	432
47 years . .	1,640	3,949	2,309

Production and consumption in 1887 compared thus :—

		Millions £	
		Production	Consumption
Cottons		19	18
Woollens		46	31
Silks		29	22
Linens		9	6
Sundries		5	4
Total . .		108	81

The metallic industries may be estimated approximately thus :—

	Tons Consumed	Value of Product, £
Steel . . .	530,000	15,900,000
Iron . . .	1,300,000	19,500,000
Copper . .	35,000	3,500,000
Lead, &c. . .	...	3,100,000
Total .	...	42,000,000

GERMANY

In 1805 the manufactures of Prussia were estimated by Oddy as follows :—

	£			£
Woollens . .	1,700,000	Hardware . .		1,300,000
Linens . .	1,800,000	Furniture .		1,000,000
Silks . .	700,000	Leather . .		400,000
Cottons . .	500,000	Sundry . .		200,000
All textiles . .	4,700,000	Miscellaneous .		2,900,000

This made a grand total of only £7,600,000, but it omitted beer, food, clothing, and other large items. In 1843 the following estimate, likewise for Prussia, was published :—

	£			£
Cottons . .	5,000,000	Linens . .		2,800,000
Woollens . .	17,400,000	Tobacco . .		2,400,000
Silks . .	3,600,000	Beer, &c. .		4,800,000

This summed up 36 millions sterling, but was also very defective.

The Census returns show the number of hands employed in manufactures in 1846 was 842,000, and in 1861 amounted to 1,093,000. That of 1869 for all Germany was as follows :—

	Factory Hands	Artisans	Total	Number of Factories
Prussia . .	680,000	1,794,000	2,474,000	79,529
Hanover . .	46,000	170,000	216,000	6,949
Bavaria . .	164,000	512,000	676,000	37,967
Saxony . .	214,000	413,000	627,000	11,357
Wurtemberg	86,000	235,000	321,000	19,231
Baden . .	63,000	156,000	219,000	6,764
Small States	168,000	500,000	668,000	28,803
Total .	1,421,000	3,780,000	5,201,000	190,600

The hands and horse-power in 1880 were as follows :—

	Hands	Horse-Power
Textiles	910,000	391,000
Clothing	1,260,000	21,000
Food	744,000	176,000
Wood	470,000	52,000
Machinery	356,000	195,000
Metals	460,000	106,000
Building	534,000	22,000
Sundries	983,000	320,000
Total . .	5,717,000	1,283,000

The Census of 1880 gave the following tables :—

	Hands Engaged in Factories			Manufacturing Population	
	Males	Females	Total		
Textiles	195,000	190,000	385,000	Prussia	9,394,000
Hardware	312,000	15,000	327,000	Bavaria	1,492,000
Food	219,000	46,000	265,000	Saxony	1,696,000
Printing	29,000	7,000	36,000	Wurtemburg . . .	674,000
Various	444,000	70,000	514,000	Small States . . .	2,802,000
Total . . .	1,199,000	328,000	1,527,000	Total .	16,058,000

In 1876 Engel found 28,985 factories had steam-power with an aggregate of 888,000 horse-power. The number of persons engaged in certain industries in 1880 was as follows :—

	Textiles	Iron	Machinery	Leather	Wood	Paper
Prussia	452,000	201,000	194,000	67,000	243,000	49,000
Bavaria.	65,000	37,000	18,000	11,000	57,000	8,000
Saxony	166,000	27,000	42,000	9,000	41,000	18,000
Wurtemburg	36,000	18,000	17,000	7,000	26,000	6,000
Small States	191,000	101,000	83,000	28,000	103,000	20,000
Total	910,000	384 000	354,000	122,000	470,000	101,000

The production and consumption of textile goods in Germany in 1887 represented approximately the following values :—

	Millions £ Sterling		Spindles in Factories
	Manufacture	Consumption	
Cottons . . .	23	20	4,900,000
Woollens . . .	35	25	2,000,000
Linens	7		300,000
Silks.	15	7	900,000
Sundries . . .	2	2	100,000
Total . .	82	60	8,200,000

The following table gives approximately the value of all textiles manufactured at various dates, in millions £ sterling :—

	1810	1840	1860	1880	1887
Woollens .	3	8	16	28	35
Cottons . .	1	5	9	20	23
Silks . . .	1	2	4	11	15
Linens, &c.	4	6	8	9	9
Total .	9	21	37	68	82

The balance-sheet of textile industries for 47 years to 1887 may be summed up thus :—

	Millions £ Sterling		
	Fibre	Manufactures	Net Product
Cotton	303	727	424
Wool	329	948	619
Silk	132	280	148
Flax, &c. . . .	158	372	214
Total . . .	922	2,327	1,405
1841-50 . . .	120	318	198
1851-60 . . .	152	396	244
1861-70 . . .	210	486	276
1871-80 . . .	247	607	360
1881-87 . . .	193	520	327
47 years . . .	922	2,327	1,405

Hardware manufactures in 1888 were estimated thus :—

	Tons	Manufactures, Value, £
Steel	1,400,000	37,800,000
Iron	3,000,000	40,500,000
Copper . . .	32,000	3,200,000
Lead, zinc, &c. .	250,000	9,500,000
Total . .	3,682,000	91,000,000

RUSSIA

The number of factories at various dates was :—

	1812	1824	1839	1864
Tanneries . . .	1,150	1,784	1,918	...
Tallow . . .	181	1,023	998	1,254
Cotton . . .	129	484	467	423
Woollen . . .	136	324	616	536
Linen . . .	170	214	267	599
Silk . . .	105	184	227	326
Iron . . .	33	170	486	...
Sundries . . .	423	1,103	1,876	12,315
Total . .	2,327	5,286	6,855	15,453

Year	Number of Factories	Operatives	Product, £
1812 . . .	2,327	69,000	...
1824 . . .	5,286	250,000	5,100,000
1839 . . .	6,855	413,000	12,400,000
1851 . . .	9,256	457,000	15,700,000
1864 . . .	15,453	465,000	52,000,000
1879 . . .	27,927	685,000	90,900,000
1882 . . .	56,905	955,000	112,600,000
1888 . . .	83,182	1,134,000	136,000,000

	1824	1835
	£	£
Woollens	2,600,000	3,800,000
Cottons	1,600,000	2,500,000
Linens	500,000	700,000
Silks	400,000	700,000
All textiles . . .	5,100,000	7,700,000

Schubert's tables for 1828 give the output of the factories thus :—

	Yards		Tons
Cottons . .	60,000,000	Tobacco . . .	28,000
Linens . .	20,000,000	Sugar	17,000
Woollens .	16,000,000	Soap and potash	22,000
Total .	96,000,000	Total . .	67,000

Moreover, the tanneries turned out 3,500,000 tanned hides. There were 100 steam-engines at work in the Empire.

In 1835 it was estimated that the factories contained 280,000 hands, and that 800,000 artisans worked on their own account, making a total manufacturing strength of 1,080,000 persons.

In 1839 the seats of factories were :—

	Factories	Operatives
Moscow	1,058	83,000
Vladimir	315	84,000
Perm	352	37,000
Kaluga	164	20,000
Tula	124	17,000
Various	4,842	172,000
Total . . .	6,855	413,000

In 1864 the following table was published :—

	Factories	Operatives	Output, £
Woollens . .	536	92,000	5,900,000
Cottons . .	423	58,000	6,100,000
Linens . .	599	44,000	5,300,000
Silks . .	326	9,000	900,000
All textiles . .	1,884	203,000	18,200,000
Sugar . .	432	55,000	4,900,000
Tallow . .	1,254	7,000	2,100,000
Liquor . .	1,446	31,000	8,300,000
Sawmills . .	2,508	12,000	2,600,000
Sundries . .	7,929	157,000	15,900,000
Total .	15,453	465,000	52,000,000

At the same time Buschen valued all the manufactures of Russia at 136 millions sterling, viz. :—

Textiles	£	Miscellaneous	£
Linens . . .	18,200,000	Hardware .	10,800,000
Cottons . . .	15,800,000	Liquor . .	52,000,000
Woollens . .	7,100,000	Leather . .	8,900,000
Hemp . . .	6,300,000	Tallow . .	3,200,000
Silks	2,300,000	Sundries . .	11,600,000
Total .	49,700,000	Total .	86,500,000

The above of course includes not only factories, but also the product of the labours of artisans.

An official statement in 1882 shows that the output of the mills had more than doubled since 1864, viz. :—

	1864	1882
	£	£
Textiles	18,200,000	31,300,000
Sugar	4,900,000	14,100,000
Liquor	8,300,000	19,500,000
Sundries . . .	20,600,000	47,700,000
Total . . .	52,900,000	112,600,000

The manufacture of liquor stands officially thus :—

	Factories	Gallons	Value, £
Whisky . .	2,377	91,000,000	13,800,000
Beer . .	1,870	75,500,000	5,700,000
Total .	4,247	166,500,000	19,500,000

It is believed that the illicit distillation of whisky is large, and that in reality Russians consume 160 million gallons of whisky yearly. The above is irrespective of Poland, whose manufactures in 1882 reached £14,700,000, and Finland £1,500,000. If these were added, the grand total of factory products would be £128,800,000. The following table shows approximately the value of textile manufactures at stated periods, in millions sterling :—

	1820	1840	1860	1870	1880
Woollens . . .	3	5	8	10	14
Cottons . . .	1	4	7	12	14
Linens . . .	1	2	5	7	8
Silks, &c. . .	...	4	5	6	6
Total . .	5	15	25	35	42

The balance-sheet of textile industries for 47 years may be summed up thus :—

	Millions £ Sterling		
	Fibre	Manufactures	Net
Cotton	192	461	269
Wool	272	780	508
Silk	18	37	19
Flax, &c. . . .	195	465	270
Total . .	677	1,743	1,066
1841-50 . . .	94	250	156
1851-60 . . .	111	294	183
1861-70 . . .	142	352	210
1871-80 . . .	193	486	293
1881-87 . . .	137	361	224
47 years . . .	677	1,743	1,066

The production and consumption of textiles in 1887 was approximately as follows, in millions sterling :—

	Production	Consumption
Cottons . . .	22	28
Woollens . . .	14	14
Linens . . .	9	9
Silks, &c. . .	7	6
Total . .	52	57

The hardware industry may be estimated thus :—

	Tons	Manufactures, Value, £
Iron	400,000	5,400,000
Steel	260,000	7,000,000
Copper, lead, &c. .	26,000	1,100,000
Total . .	686,000	13,500,000

The above is 50 per cent. over the Government valuation for metallic manufactures in 1886, namely, 86 million roubles ; these industries employ 85,400 hands.

AUSTRIA

In 1805 the textile factories employed 170,000 hands. Becher's table in 1834 was as follows :—

Factories	No.	Factories	No.	Factories	No.
Leather	580	Chemicals	82	Iron	700
Flax and hemp	869	Spirits	250	Steel	210
Cotton	298	Glass	210	Copper	185
Wool	165	Pottery	165	Sundry	8,432

He summed up the whole manufacturing industry thus :—

Number of factories	11,064
Operatives	2,330,000
Product, £	142,000,000

There was a rapid increase of textile industry after Becher's time, as shown by the number of looms in factories :—

Year	Steam-Looms	Hand-Looms
1850	1,140	... 100,000
1860	10,360	... 80,000
1870	16,650	... 70,000
1875	23,000	... 55,000

In the last-mentioned year there were in Austria proper, without Hungary, 6400 factories, using 11,400 steam-engines.

In 1887 the principal manufacturing companies in Vienna had the following capital :—

	£		£
Mining	7,200,000	Paper-mills	1,500,000
Textiles	2,300,000	Breweries	1,400,000
Sugar	2,300,000	Ironworks	1,200,000

In 1888 the principal textile industries showed thus :—

	Factories	Operatives	Spindles	Power-Looms
Cotton	1,900	96,000	2,350,000	42,000
Wool	2,707	59,000	650,000	17,500
Linen	348	60,000	400,000	5,000
Total	4,955	215,000	3,400,000	64,500

At the same time Hungary had 988 mills, with 90,000 operatives and 63,000 horse-power. The following table shows the production of textiles (excluding Lombardy) in the Empire at various dates, in millions £ sterling :—

	1830	1850	1860	1870	1880
Woollens	4	6	7	8	9
Cottons	3	5	6	8	10
Linens	3	4	4	5	6
Silks, &c.	3	3	5	5	6
Total	13	18	22	26	31

The balance-sheet of textile industries for 47 years may be summed up thus :—

	Millions £ Sterling		
	Fibre	Manufactures	Net
Cotton	161	382	221
Wool	163	484	321
Silk	49	99	50
Flax, &c.	144	342	198
Total	517	1,307	790
1841–50	78	199	121
1851–60	91	242	151
1861–70	116	279	163
1871–80	135	331	196
1881–87	97	256	159
47 years	517	1,307	790

The production and consumption in 1887 were approximately as follows :—

	Millions £ Sterling	
	Production	Consumption
Cottons	14	14
Woollens	9	9
Linens	6	5
Silks, &c.	7	6
Total	36	34

The number of hands engaged in manufactures in 1880, and that of the manufacturing population, are shown thus :—

	Principals	Dependents	Total
Austria	576,000	4,134,000	4,710,000
Hungary	381,000	408,000	789,000
Total	957,000	4,542,000	5,499,000

Hardware manufactures may be estimated thus :—

	Tons Consumed	Manufactures, Value £
Iron	460,000	6,200,000
Steel	280,000	7,600,000
Copper, &c.	...	1,200,000
Total	...	15,000,000

ITALY

In the 18th century the woollen factories of Florence had 30,000 operatives. After a long period of depression, industry began to revive, and in 1840 the kingdom of Sardinia had :—

	Factories	Workmen	Women	Total
Cottons	312	7,900	9,000	16,900
Silks	590	4,900	10,000	14,900
Woollens	62	3,400	2,000	5,400
Total	964	16,200	21,000	37,200

In 1877 the official report was as follows :—

	Men	Women and Children	All Hands	Spindles
Silk	16,000	184,000	200,000	2,083,000
Cotton	16,000	38,000	54,000	880,000
Woollen	12,000	13,000	25,000	305,000
Linen and hemp	11,000	11,000	22,000	60,000
Paper	7,000	10,000	17,000	...
Leather	10,000	1,000	11,000	...
Sundries	32,000	21,000	53,000	...
Total	104,000	278,000	382,000	...

	Number of Spindles				
	Cotton	Silk	Wool	Linen	Total
Piedmont	312,000	357,000	135,000	2,000	806,000
Lombardy	220,000	1,638,000	10,000	32,000	1,900,000
Liguria	104,000	13,000	12,000	3,000	132,000
Venice	39,000	54,000	69,000	4,000	166,000
Other provinces	205,000	21,000	79,000	18,000	323,000
Total	880,000	2,083,000	305,000	59,000	3,327,000

The distribution of power was as follows :—

	Horse-Power			Number of Power-Looms
	Steam	Water	Total	
Cotton . . .	3,000	10,000	13,000	42,000
Wool . . .	1,100	6,200	7,300	6,600
Linen . . .	500	2,500	3,000	800
Paper . . .	300	13,700	14,000	...
Silk, &c. . .	10,000	7,000	17,000	1,500
Total . .	14,900	39,400	54,300	50,900

The increase of steam-power since 1878 has been remarkable, the consumption of coal having trebled in nine years, viz. :—

Year						Tons
1862	.	.	.	.	.	446,000
1878	.	.	.	.	.	1,325,000
1887	.	.	.	.	.	3,580,000

The following table shows approximately the production of textile industries in millions £ sterling :—

	1850	1860	1870	1880
Woollens . . .	3	4	4	5
Cottons . . .	2	3	4	6
Silks, &c. . .	3	5	6	7
Total . .	8	12	14	18

The production and consumption in 1887 were approximately :—

	Millions £ Sterling	
	Production	Consumption
Cottons	9	11
Woollens	5	7
Linens	3	3
Silks, &c. . . .	4	4
Total . .	21	25

The balance-sheet of textile industries for 47 years may be summed up thus :—

	Millions £ Sterling		
	Fibre	Manufactures	Net
Cotton . .	72	163	91
Wool . .	77	195	118
Silk . .	38	72	34
Flax, &c. .	64	153	89
Total . .	251	583	332
1841–50 . .	32	74	42
1851–60 . .	39	94	55
1861–70 . .	57	128	71
1871–80 . .	69	156	87
1881–87 . .	54	131	77
47 years . .	251	583	332

Hardware manufactures may be summed up thus :—

	Tons Consumed	Manufactures, Value, £
Iron	260,000	3,500,000
Steel	20,000	600,000
Lead, &c. . .	....	200,000
Total . .	...	4,300,000

Italy has a manufacturing population of 4,494,000 souls, the number of operatives and artisans being approximately 2,281,000.

SPAIN

Manufacturing industry has progressed but little, if it has not positively declined. Seville had 16,000 silk-looms in the sixteenth century; at present there are only 3000 in all Spain. Toledo, so famous for its swords, has still one small factory with 300 workmen. Cotton-mills were introduced so far back as 1769, yet the whole number of operatives in this industry does not exceed 53,000. According to a Government report, in 1826 the value of textile and other manufactures produced yearly was £14,700,000 sterling; much too low an estimate. A semi-official statement published in 1873 showed 563 textile factories in the kingdom, with an aggregate capital of £21,000,000 sterling, counting 48,000 looms, 1,220,000 spindles, 93,000 operatives, and 17,000 horse-power. By placing a fictitious value on the articles manufactured, the output of the mills was raised to £21,000,000 sterling, which was 50 per cent. over the reality.

The statement was as follows :—

	Operatives	Looms	Output, £
Cottons . .	53,000	33,000	12,400,000
Woollens . .	25,000	7,000	4,300,000
Silks . .	9,000	3,000	2,800,000
Linens . .	6,000	5,000	1,100,000
Total . .	93,000	48,000	20,600,000

The production and consumption of textiles in 1887 were approximately as follows :—

	Millions £	
	Production	Consumption
Cottons	7	7
Woollens . . .	6	7
Linens, silks, &c. .	3	4
Total . .	16	18

The balance-sheet of textile industries for 47 years may be summed up thus :—

	Millions £ Sterling		
	Fibre	Manufactures	Net
Cotton . . .	86	202	116
Wool	103	293	190
Silk	15	32	17
Flax, &c. . .	35	84	49
Total . .	239	611	372
1841–50 . . .	34	94	60
1851–60 . . .	44	115	71
1861–70 . . .	55	134	79
1871–80 . . .	63	158	95
1881–87 . . .	43	110	67
47 years . . .	239	611	372

Hardware manufacture may be estimated thus :—

	Tons Consumed	Manufactures, Value, £
Iron	210,000	2,800,000
Steel	30,000	900,000
Copper, &c. . .	...	300,000
Total . .	...	4,000,000

In 1873 the Government estimated all Spanish manufactures at £60,000,000 sterling : much too low a figure.

SCANDINAVIA

In 1765 the Government of Sweden, finding the nobles unable to keep up agriculture, passed a law to close most of the factories, which caused the skilled workmen in steel-works and silk-mills to migrate into Russia. The law was repealed in 1785, but the mischief was done. The factory statistics show thus :—

Year				Factories	Product, £
1772	.	.	.	886	...
1830	.	.	.	1,857	700,000
1840	.	.	.	2,176	1,200,000
1850	.	.	.	2,513	2,100,000
1865	.	.	.	2,315	4,200,000
1876	.	.	.	2,825	9,600,000

A statement published in 1837 was as follows :—

		Woollens	Cottons, &c.	All Textiles
Factories	.	109	1,940	2,049
Operatives	.	3,000	10,300	13,300
Output, £	.	300,000	760,000	1,060,000

The statement for 1865 was as follows :—

Textiles	£	Miscellaneous	£
Cottons . .	490,000	Sugar . . .	730,000
Woollens .	480,000	Tobacco . .	360,000
Silks, linens, &c.	470,000	Hardware, &c.	1,680,000
All textiles . .	1,440,000	Total .	2,770,000

According to Knut Bonde, the factories represented about half the manufactures produced, the total value having been £1,400,000 in 1824, and £4,800,000 in 1850. The hands employed in factories were 13,300 in 1837, and 53,000 in 1876.
In the latter year the factories were as follows :—

Worked by			Number	Horse-Power
Steam	.	.	684	28,000
Water	.	.	637	...
Animals	.	.	1,504	...
Total	.	.	2,825	...

In later years a valuable industry has sprung up at Jönköping in the manufacture of wooden matches, of which 450 millions are exported yearly, weighing 15,000 tons.
In 1880 Denmark had 720 factories, with 25,000 operatives and 10,000 horse-power. The textile products of all Scandinavia hardly reach four millions sterling per annum.
Hardware manufactures in Sweden may be estimated thus :—

			Tons Consumed	Manufactures, Value £
Iron .	.	.	300.000	4,100,000
Steel .	.	.	80,000	2,200,000
Total	.		380,000	6,300,000

Those of Norway are about £400,000, and of Denmark £600,000.

BELGIUM

In 1830, when Belgium threw off the Dutch yoke, her factories were already flourishing, for they counted 12,000 steam-engines, with an aggregate of 20,000 horse-power. Since then her steam-power in fixed engines for factories and mines has grown prodigiously, viz. :—

Year								Horse-Power
1830 .	.	.	.	.	.	.	.	20,000
1838 .	.	.	.	.	.	.	.	25,300
1860 .	.	.	.	.	.	.	.	162,000
1880 .	.	.	.	.	.	.	.	209,000

In 1838 the following table was published :—

	Textile Factories		
	Capital, £	Operatives	Product, £
Cotton . .	2,400,000	122,000	3,400,000
Woollen . .	3,000,000	40,000	1,000,000
Hosiery . .	...	50,000	...

Besides the foregoing, the linen factories turned out 750,000 pieces yearly, and the production of lace was valued at £350,000.
There were also 175 foundries, with 14,000 operatives, turning out 150,000 tons pig iron.
The production of textiles was approximately as follows :—

Year	Millions £			
	Woollens	Cottons	Linens, &c.	Total
1840 . . .	2	3	1	6
1860 . . .	3	3	2	8
1880 . . .	6	3	8	17

Production and consumption in 1887 were approximately :—

	Millions £	
	Production	Consumption
Cottons	3	3
Woollens	6	6
Linens	5	1
Silks, &c.	2	1
Total . .	16	11

The following table combines the official reports of 1846 and 1880 :—

	1846		1880		
	Operatives	Horse-Power	Operatives	Horse-Power	Product, Value, £
Coal-mines .	46,200	22,500	97,700	87,400	6,200,000
Ironworks .	42,300	5,700	70,000	38,500	14,100,000
Potteries .	35,800	1,200	51,500	7,700	3,800,000
Cotton-mills .	14,700	1,600	17,500	9,900	2,700,000
Woollen-mills .	18,200	1,600	25,000	13,100	6,000,000
Flax, &c., mills .	60,700	1,100	50,900	9,800	5,400,000
Food . . .	29,900	2,000	57,600	54,700	31,600,000
Sundries . .	67,000	1,300	58,600	21,300	17,200,000
Total . .	314,800	37,000	428,800	242,400	87,000,000

Motive power in 1880 was as follows :—

By				Factories	Horse-Power
Steam	.	.	.	8,433	209,500
Water	.	.	.	2,436	19,600
Wind	.	.	.	2,158	13,300
Total	.	.		13,027	242,400

In 1880 the ratio of horse-power was 56 to every 100 operatives, whereas in 1846 it was less than 12. Horse-power grew seven-fold in thirty-four years.

The balance-sheet of textile industries for 47 years may be summed up thus :—

	Millions £ Sterling		
	Fibre	Manufactures	Net
Cotton	58	141	83
Wool	73	190	117
Silk	7	17	10
Flax, &c. . . .	53	130	77
Total . .	191	478	287
1841–50 . . .	18	54	36
1851–60 . . .	22	59	37
1861–70 . . .	45	108	63
1871–80 . . .	63	151	88
1881–87 . . .	43	106	63
47 years . . .	191	478	287

The hardware industries may be estimated thus :—

	Tons Consumed	Manufactures, Value, £
Iron	600,000	8,100,000
Steel	230,000	6,200,000
Zinc, copper, &c. . .	...	2,200,000
Total . .	...	16,500,000

According to the Census of 1880 there were 953,000 persons engaged in manufactures, and the gross value of their products was 87 millions sterling. The statement at page 365 gives 102 millions for 1888.

SWITZERLAND

In 1887 the Factory Report showed thus :—

	Factories	Operatives
Cotton . . .	398	36,400
Silk	246	26,500
Wool, flax, &c. .	77	4,200
Lace	1,240	23,300
Watches . . .	201	11,100
Sundries . . .	925	49,200

The total was 3087 factories with 151,000 operatives.
The manufactures, between the above factories and the work done outside, represented approximately the following values :—

Textiles	£	Miscellaneous	£
Silks	5,800,000	Hardware . . .	1,600,000
Cottons . . .	3,100,000	Watches . . .	3,800,000
Woollens, &c. .	1,400,000	Lace	4,200,000
		Sundries . . .	15,400,000
Total . .	10,300,000	Total . .	25,000,000

UNITED STATES

Reduced to English money, the principal manufactures may be summed up thus :—

	Census Values, Millions of £ Sterling					Approximate Value in 1888
	1810	1840	1860	1870	1880	
Textiles . .	10	14	38	55	80	112
Hardware .	4	10	29	92	129	194
Food . . .	8	18	64	110	168	202
Clothing . .	3	8	15	27	50	98
Leather . .	4	7	34	56	83	104
Lumber . .	1	3	20	42	49	63
Sundries . .	1	36	192	323	558	670
Total . .	31	96	392	705	1,117	1,443

The principal manufactures were as follows, in millions of dollars. The paper value of 1870 is reduced to its proper equivalent in gold :—

	Millions of Dollars					
	1810	1840	1850	1860	1870	1880
Flour . . .	21	71	136	224	356	505
Iron . . .	17	37	49	71	287	336
Leather . .	18	33	92	162	271	397
Lumber . .	6	15	59	96	202	233
Cottons . .	30	46	66	115	142	211
Machinery .	...	11	28	47	111	214
Clothing . .	...	36	48	70	130	242
Sugar . . .	...	...	10	38	96	155
Woollens . .	17	21	48	69	121	161
Liquor . . .	16	15	22	43	75	144
Cabinet-work .	...	18	18	24	55	83
Printing . .	...	...	12	42	46	91
Implements .	...	...	7	18	42	69
Paper . . .	...	...	10	18	39	55
Soap and candles	...	...	10	17	18	27
Sundries . .	27	155	404	832	1,395	2,447
Total . .	152	458	1,019	1,886	3,386	5,370

There was no Census of manufactures in 1820; that of 1830 took only the number of hands engaged. The Census of 1810 gave the following; the values being reduced to English money :—

States	Textile Goods	Sundries	Total	Ratio
	£	£	£	
New England	2,600,000	4,900,000	7,500,000	23.8
Middle . .	3,500,000	12,300,000	15,800,000	50.0
South . . .	3,560,000	4,640,000	8,200,000	25.9
West . . .	40,000	60,000	100,000	3
Total .	9,700,000	21,900,000	31,600,000	100.0

The Census of 1840 gave the following :—

	Hands	Value, £	Product per Hand, £
Cottons . . .	72,100	9,700,000	136
Woollens . .	21,300	4,300,000	206
Mixed . .	38,400	9,700,000	247
Hardware . .	44,100	7,700,000	175
Machinery . .	13,000	2,300,000	177
Flour . . .	60,800	14,800,000	244
Houses . . .	85,500	8,700,000	102
Carpentry . .	39,900	3,900,000	98
Timber . .	22,100	3,200,000	145
Liquor . . .	12,200	3,100,000	245
Leather . .	26,100	6,900,000	263
Sundries . .	160,000	20,900,000	130
Total . .	595,500	95,200,000	160

States	Manufactures	Capital
	£	£
New England . . .	31,800,000	18,000,000
Middle	41,600,000	22,400,000
South	11,900,000	8,600,000
West	9,900,000	6,600,000
Total . .	95,200,000	55,600,000

Since 1840 there has been a steady increase in the average product per operative, which was then only £160, and in 1880 exceeded £400. This is mainly due to improved machinery, enabling two men now to produce as much as five did in 1840.

The Census of 1850 showed as follows :—

States	Opera-tives	Millions £ Sterling			Product per Hand, £
		Capital	Wages	Product	
N. England	313,000	34	16	59	186
Middle . .	418,000	49	21	98	233
South . .	104,000	13	4	20	192
West . . .	122,000	14	8	35	288
Total .	957,000	110	49	212	220

The Census of 1860 showed as follows :—

States	Opera-tives	Millions £ Sterling			Product per Hand, £
		Capital	Wages	Product	
N. England	390,000	54	22	98	250
Middle . .	542,000	89	31	166	306
South . .	126,000	23	7	39	310
West . . .	253,000	42	20	91	360
Total .	1,311,000	208	80	394	301

That of 1870, reduced to gold values, showed :—

States	Opera-tives	Millions £ Sterling			Product per Hand, £
		Capital	Wages	Product	
N. England	526,000	85	37	167	317
Middle . .	801,000	156	56	295	370
South . .	187,000	24	8	47	250
West . . .	540,000	102	34	196	363
Total .	2,054,000	367	135	705	344

That of 1880 showed as follows :—

States	Opera-tives	Millions £ Sterling			Product per Hand, £
		Capital	Wages	Product	
N. England	645,000	130	48	231	358
Middle . .	1,102,000	243	83	462	420
South . .	228,000	40	11	70	307
West . . .	758,000	168	56	354	470
Total .	2,733,000	581	198	1,117	408

The value of manufactures was artificially heightened by protective customs duties. My estimate for 1888, at page 378, is 1443 millions sterling. The results of the last five Censuses may be summed up thus :—

Year	Opera-tives	Millions £ Sterling			Product per Hand, £
		Capital	Wages	Product	
1840 . .	596,000	...	...	95	160
1850 . .	957,000	110	49	212	220
1860 . .	1,311,000	208	80	394	301
1870 . .	2,054,000	367	135	705	344
1880 . .	2,733,000	581	198	1,117	408

The numbers for 1870 and 1880 seem to include only factory hands, as the Censuses for those years give the numbers employed in manufactures throughout the Union as 2,707,000 and 3,837,000 respectively. See *Occupation*.

The production and consumption of textile goods in 1888 were approximately as follows :—

	Millions £ Sterling	
	Production	Consumption
Cottons	60	63
Woollens	39	44
Silks. . . .	7	14
Linens, &c. . . .	6	13
Total . .	112	134

The value of all textile manufactures at various dates, was approximately :—

Year	Millions £ Sterling				
	Woollens	Cottons	Silks	Linens,&c.	Total
1810	4	6	...	...	10
1840	4	9	...	1	14
1850	10	13	...	1	24
1860	13	22	1	2	38
1870	23	26	2	4	55
1880	30	38	7	5	80
1888	39	60	8	5	112

The balance-sheet of textile industries for 47 years was approximately as follows :—

	Millions £ Sterling		
	Fibre	Manufactures	Net Product
Cotton . .	663	1,411	748
Wool . . .	314	911	597
Silk . . .	55	115	60
Flax, &c. . .	76	184	108
Total .	1,108	2,621	1,513
1841–50 . .	88	261	173
1851–60 . .	138	375	237
1861–70 . .	316	628	312
1871–80 . .	297	706	409
1881–87 . .	269	651	382
47 years . .	1,108	2,621	1,513

The value of hardware manufactures may be estimated for 1888 as follows :—

	Tons Consumed	Manufactures, Value, £
Iron	4,800,000	72,000,000
Steel	3,150,000	94,500,000
Copper . . .	110,000	14,000,000
Lead . . .	180,000	6,700,000
Tin, zinc, &c. . .	70,000	6,300,000
Total .	8,310,000	193,500,000

The principal manufacturing States have been as follows :—

States	Operatives				Product, Millions £			
	1850	1860	1870	1880	1850	1860	1870	1880
New York	199,000	230,000	351,000	501,000	50	79	131	224
Pennsylvania . . .	147,000	222,000	319,000	387,000	32	60	119	155
Massachusetts . . .	178,000	247,000	279,000	352,000	33	53	93	131
Other States	433,000	642,000	1,105,000	1,493,000	97	202	362	607
Total . .	957,000	1,311,000	2,054,000	2,733,000	212	394	705	1,117

States	Ratio per Operative							
	Wages, £				Product, £			
	1850	1860	1870	1880	1850	1860	1870	1880
New York . .	51	59	68	83	250	340	373	448
Pennsylvania .	52	56	69	72	220	267	372	400
Massachusetts .	49	54	73	76	180	240	332	370
Ohio . . .	54	61	62	70	255	334	330	395
Illinois . .	50	70	64	80	250	500	409	593
New Jersey .	50	59	75	76	210	270	373	420
Connecticut .	49	61	75	81	196	270	300	344
Other States .	52	68	57	63	225	316	317	384
General average .	51	61	66	72	220	300	344	408

The motive-power in 1880 compared with 1870 thus :—

Year	Factories			Horse-Power		
	Steam	Water	Total	Steam	Water	Total
1870	40,191	51,018	91,209	1,216,000	1,130,000	2,346,000
1880	56,483	55,400	111,883	2,186,000	1,225,000	3,411,000

The distribution of motive-power and that of operatives were as follows :—

Factories	Horse-Power		Hands	
	1870	1880	1870	1880
Cotton . .	146,000	276,000	136,000	186,000
Woollen . .	93,000	123,000	90,000	105,000
Flour . . .	577,000	771,000	58,000	58,000
Lumber . .	642,000	822,000	150,000	148,000
Iron . . .	171,000	397,000	78,000	141,000
Paper . . .	53,000	124,000	18,000	24,000
Implements, &c.	664,000	898,000	2,177,000	2,175,000
Sundries . .	2,346,000	3,411,000	2,707,000	3,837,000

	Ratio of Power in 1880		
	Steam	Steam and Water	Hands
Pennsylvania .	18.4	15.0	13.8
New York . .	10.7	13.3	16.4
Ohio . . .	10.2	7.7	6.3
Massachusetts .	7.8	9.1	9.6
Michigan . .	6.0	4.8	3.4
Illinois . .	5.8	4.2	5.4
Other States .	41.1	45.9	45.1
Total .	100.0	100.0	100.0

The principal industries of Australia as regards number of hands employed were :—

	Textiles	Hardware	Food	Sundries	Total
New South Wales . . .	5,700	16,700	7,400	15,800	45,600
Victoria	9,600	20,600	5,800	18,500	54,500
New Zealand	4,100	8,100	3,200	6,700	22,100
Total . .	19,400	45,400	16,400	41,000	122,200

The average product per operative being £253 in Canada and £297 in the United States, we may fairly suppose £250 for Australia, in which case the result would be :—

	Value Produced, £		Value Produced, £
New South Wales	11,400,000	Textiles . . .	6,500,000
Victoria . . .	13,600,000	Hardware . .	15,100,000
New Zealand	5,500,000	Food . . .	5,500,000
Four other Colonies	10,200,000	Sundries . .	13,600,000
Total . .	40,700,000	Total . .	40,700,000

The above is the output of factories, the total value of

CANADA

The earliest record of manufactures was published in 1830, as follows :—Domestic looms 1300, turning out 4,000,000 yards of woollens and linens yearly ; saw-mills 1580, with an aggregate capital of £1,250,000 ; export of timber £1,000,000 sterling. There were also 1086 mills of various other kinds, and seven foundries.

The industrial Census of 1881 compared with 1871 as follows :—

Year	Capital, £	Product, £	Operatives	Average Wages, £
1871 . .	16,200,000	46,000,000	188,000	45.2
1881 . .	34,400,000	64,400,000	255,000	48.4

The average product per operative was £244 in 1871, and £253 in 1881.

AUSTRALIA

Only three of the Australian colonies publish detailed statistics of manufactures, which are given for 1886–89 in Mr. Coghlan's Official Report for New South Wales. These three Colonies, however, comprise three-fourths of the population, and if we suppose the others have manufactures in the same ratio, the account will stand thus :—

	Factories	Hands	Value of Machinery, £
New South Wales .	3,106	45,600	5,740,000
Victoria . . .	2,974	54,500	5,490,000
New Zealand . .	1,946	22,100	2,110,000
Four other Colonies .	2,680	40,700	4,450,000
Total . .	10,706	162,900	17,790,000

In New South Wales the value of land and buildings occupied by factories in 1888 was £9,350,000, making a total of £15,100,000 invested in this branch of industry. Supposing the ratio to be the same in the other Colonies as compared with value of machinery, the result is :—

	Manufactures, Capital, £	£ per Inhabitant
New South Wales . .	15,100,000	13.6
Victoria	14,400,000	13.0
New Zealand . . .	5,500,000	9.0
Four other Colonies .	11,500,000	12.7
Total . .	46,500,000	12.8

manufactures being probably about 64 millions sterling, as already stated.

The growth of manufactures has been very rapid, the number of hands in New South Wales, for example, having risen thus :—

	1878	1888
Males	21,500	41,300
Females	3,200	4,300
Total . .	24,700	45,600

This shows a rise of 80 per cent. in ten years.

MANURE

The following table gives the annual yield of animal manure according to the scale of French official estimates and its value approximately :—

	Tons	Value, £
United Kingdom .	79,000,000	31,600,000
France	84,000,000	33,600,000
Germany	113,000,000	45,200,000
Russia	213,000,000	85,200,000
Austria	100,000,000	40,000,000
Italy	25,000,000	10,000,000
Spain and Portugal .	39,000,000	15,600,000
Belgium and Holland	17,000,000	6,800,000
Scandinavia . .	30,000,000	12,000,000
Turkey, &c. . .	32,000,000	12,800,000
Europe . . .	732,000,000	292,800,000
United States . .	385,000,000	154,000,000
Total . .	1,117,000,000	446,800,000

Animal manure forms the chief ingredient of farm-yard dung, mixed with straw, &c. In England about 13 tons of dung go to the acre ; in Belgium 45 ; in Russia 7 on the Moujiks' farms, and 14 on those of the nobility. In France fish is often used, as also in Norfolk ; it costs 16s. a ton, and is mixed with mould as 1 to 40, pro-ducing heavy turnip crops. Nitrate potash and bone-ash are also much used in England. The results obtained on a farm in Oxfordshire in 1888 were :—

	Tons per Acre	
	Grass	Hay
Unmanured	5.0	1.3
Manured	12.0	2.5

The manure consisted of 6 cwt. of nitrate and potash per acre. The production of animal manure yearly is 10 cwt. for a goat, 14 a sheep, 30 a pig, 5 tons for a horse, and 6 tons a cow ; but a portion of this is lost. Artificial manures imported into Great Britain were :—

Year	Tons		Value, £	
	Guano	Nitrate	Guano	Nitrate
1860 . . .	140,000	37,000	1,560,000	500,000
1870 . . .	280,000	56,000	3,480,000	880,000
1880 . . .	80,000	46,000	810,000	700,000
1889 . . .	28,000	118,000	200,000	1,100,000

Great Britain also imported in 1889 the following :—

	Tons	Value, £
Phosphates . . .	305,000	700,000
Bones	62,000	310,000
Various	90,000	125,000
Total . .	457,000	1,135,000

Making a total of 603,000 tons of artificial manure, worth £2,500,000.

In the United States the production of phosphates is 430,000 tons, of which 270,000 for home-use, 160,000 tons being exported. Canada exported 22,000 tons in 1887, against 3000 in 1877.

MARBLE

Is worth about £4 per ton, Italy exporting annually 105,000 tons, valued at £400,000. It is 7 per cent. heavier than stone, and 5 per cent. lighter than granite. One cubic foot weighs 160 lbs., that is, 14 cubic feet per ton.

MARRIAGE

The proper age for marriage, as laid down by the ancients, was as follows :—

According to	Years	
	Husband	Wife
Hesiod	30	15
Plato	30	20
Aristotle	37	18

The minimum age fixed by law was as follows :—

Law of	Years	
	Husband	Wife
Sparta	30	20
Roman Empire . .	25	20
Canon Law . . .	14	12
England	16	15
France	18	15
Saxony	21	18
Prussia	18	14
Austria	14	14

The Emperor Tiberius made an edict against marriage by women over fifty or men over sixty, but it was soon repealed.

The medium marrying age in various nations is as follows :—

	Years			Years	
	Man	Woman		Man	Woman
England .	27.7	25.5	Sweden .	31.1	28.3
Scotland .	28.6	25.7	Norway .	31.1	27.1
Ireland . .	29.9	25.2	Belgium .	31.3	28.5
France . .	30.2	24.9	Holland .	30.9	28.0
Prussia . .	29.7	27.1	Jews . . .	30.1	26.2
Russia . .	25.2	21.5	Vienna . .	32.0	27.0
Italy . . .	30.2	25.4	Leipzig . .	28.9	26.2

The relative numbers in 1000 persons of either sex marrying at different ages are shown thus :—

Men

	Under 20	20–30	30–40	40–50	Over 50	Total
England .	35	731	144	52	38	1,000
Scotland .	32	684	189	62	33	1,000
Ireland . .	26	600	269	67	38	1,000
France . .	23	607	262	65	43	1,000
Italy . .	11	623	259	68	39	1,000
Prussia . .	8	663	231	64	34	1,000
Russia . .	373	428	122	56	21	1,000
Norway .	8	572	291	83	46	1,000
Sweden . .	1	574	299	81	45	1,000
Belgium .	9	548	307	91	45	1,000
Holland .	23	562	281	87	47	1,000
Jews . . .	22	664	174	74	66	1,000

Women

	Under 20	20–30	30–40	40–50	Over 50	Total
England .	149	680	111	41	19	1,000
Scotland .	134	686	134	37	9	1,000
Ireland . .	137	713	111	27	12	1,000
France . .	204	593	145	40	18	1,000
Italy . . .	171	657	125	34	13	1,000
Prussia . .	111	686	152	41	10	1,000
Russia . .	573	334	64	23	6	1,000
Norway .	93	657	185	53	12	1,000
Sweden . .	51	643	232	59	15	1,000
Belgium .	63	625	222	66	24	1,000
Holland .	99	607	212	61	21	1,000
Jews . . .	235	585	98	54	28	1,000

The distribution of marriages according to months in the various countries is as follows :—

	Scotland	France	Russia	Austria	Belgium	Italy	Holland	Scandinavia	Greece	Vienna	Berlin	Hungary
January . .	160	126	232	167	105	110	67	61	148	78	69	165
February . .	70	125	270	205	114	167	90	57	121	237	71	267
March . . .	71	55	12	57	39	46	59	76	21	18	83	56
April . . .	78	127	43	87	130	119	136	108	135	78	168	36
May	49	91	90	80	149	84	254	102	98	143	112	114
June	174	112	62	70	107	86	101	115	63	94	82	81
July	124	89	62	62	95	64	76	96	87	77	91	37
August . . .	73	91	20	52	87	73	86	54	68	104	71	40
September . .	74	91	41	60	100	95	73	68	89	88	103	54
October . .	74	98	185	86	101	111	83	141	161	90	146	86
November . .	114	120	174	241	120	139	116	166	145	180	111	234
December . .	139	75	9	33	53	106	59	156	64	13	93	30
Year . .	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200

From observations made in England and France (1858–67) and in Prussia (1844–61) the relation between the ages of husband and wife was ascertained to be as follows :—

When the Age of Husband is	That of the Wife will be		
	In England	In France	In Prussia
Under 20 . .	20.0	22.7	24.4
20–30 . . .	23.2	23.3	25.4
30–40 . . .	28.9	27.8	28.0
40–50 . . .	36.8	35.5	33.6
Over 50 . .	44.3	39.8	42.3

The condition of persons marrying in the various countries is shown as follows :—

	Husband			Wife		
	Bachelor	Widower	Total	Maid	Widow	Total
England .	861	139	1,000	902	98	1,000
France .	881	119	1,000	922	78	1,000
Prussia .	847	153	1,000	902	98	1,000
Russia .	808	192	1,000	864	136	1,000
Austria .	819	181	1,000	886	114	1,000
Hungary .	811	189	1,000	864	136	1,000
Italy . .	863	137	1,000	924	76	1,000
Spain . .	851	149	1,000	912	88	1,000
Belgium .	878	122	1,000	913	87	1,000
Holland .	848	152	1,000	898	102	1,000
Denmark.	865	135	1,000	914	86	1,000
Sweden .	883	117	1,000	940	60	1,000
Norway .	883	117	1,000	941	59	1,000
Greece .	899	101	1,000	926	74	1,000
Roumania .	880	120	1,000	912	88	1,000

	Bachelor with		Widower with		Total	Children per Marriage
	Maid	Widow	Maid	Widow		
England .	816	45	86	53	1,000	4.16
France . .	840	41	82	37	1,000	2.98
Prussia . .	794	53	108	45	1,000	4.12
Bavaria . .	823	54	106	17	1,000	...
Russia . .	762	46	102	90	1,000	4.85
Austria . .	755	64	131	50	1,000	4.04
Hungary .	771	40	93	96	1,000	...
Italy . . .	825	38	99	38	1,000	4.49
Spain . .	811	40	101	48	1,000	4.66
Belgium . .	827	51	86	36	1,000	4.21
Holland . .	794	54	104	48	1,000	4.34
Denmark .	813	52	101	34	1,000	3.55
Sweden . .	847	36	93	24	1,000	4.01
Norway . .	845	38	96	21	1,000	3.85
Greece . .	858	41	68	33	1,000	...
Roumania .	850	30	62	58	1,000	...

The above tables are mostly from observations of 10 years down to 1875. Earlier observations are embodied in the following table :—

Period of Observation		Bachelor with		Widower with		Total
		Maid	Widow	Maid	Widow	
France . .	1856–65	841	36	89	34	1,000
England . .	1845–51	823	42	89	46	1,000
Bavaria . .	1851–60	777	64	141	18	1,000
Belgium . .	1851–60	821	49	101	29	1,000
Denmark .	1843–49	765	86	127	22	1,000
Spain . . .	1858–62	780	48	116	56	1,000
Scotland .	1846–50	836	37	97	34	1,000
Greece . .	1861–65	868	26	66	40	1,000
Holland . .	1850–59	786	49	120	43	1,000
Italy . . .	1863–66	799	44	111	46	1,000
Norway . .	1846–55	834	51	90	25	1,000
Sweden . .	1861–65	847	41	90	22	1,000
Switzerland.	1856–60	834	46	96	24	1,000
Austria . .	1855–63	728	58	132	82	1,000
Hungary .	1852–59	665	56	140	139	1,000

The ratios of married, unmarried, and widowed persons in the various countries, as derived from Census returns, show :—

	Unmarried	Married	Widowed	Total
England . . .	602	345	53	1,000
France	518	402	80	1,000
Prussia	600	340	60	1,000
Wurtemburg. .	623	319	58	1,000
Austria . . .	596	348	56	1,000
Hungary . . .	532	407	61	1,000
Italy	582	352	66	1,000
Switzerland . .	609	319	72	1,000
Spain	572	360	68	1,000
Portugal . . .	626	308	66	1,000
Holland . . .	611	328	61	1,000
Belgium . . .	624	317	59	1,000
Scandinavia . .	618	330	52	1,000
Chile	688	260	52	1,000

The above comprises the whole population.

Considering only the women of child-bearing age, which is usually counted from 15 to 45 years, the married ratio (per 1000) will be found as follows ;—

England .	. 496	Germany .	. 463	Denmark .	. 450
Scotland .	. 444	Italy . .	. 520	Belgium .	. 409
Ireland .	. 401	Sweden .	. 420	Holland .	. 439
France .	. 531	Norway .	. 437	Switzerland	. 421

The lowest ratio is in Ireland ; this is the strongest proof of the wretched condition of the Irish people, and offers no hope of improvement.

The following table from the *Demografia* gives the distribution of adults (1879):—

	Males over 18 Years				Females over 15 Years			
	Unmarried	Married	Widowers	Total	Unmarried	Married	Widows	Total
France . . .	322	603	75	1,000	326	542	132	1,000
England . .	319	617	64	1,000	361	522	117	1,000
Bavaria. . .	440	502	58	1,000	440	457	103	1,000
Belgium . .	426	503	71	1,000	427	463	110	1,000
Denmark . .	356	585	59	1,000	375	507	118	1,000
Scotland . .	355	582	63	1,000	414	453	133	1,000
Norway . .	358	581	61	1,000	400	488	112	1,000
Holland . .	378	556	66	1,000	405	476	119	1,000
Portugal . .	440	502	58	1,000	437	435	128	1,000
Prussia . .	361	583	56	1,000	368	512	120	1,000
Sweden. . .	365	573	62	1,000	403	472	125	1,000
Switzerland .	413	512	75	1,000	426	449	125	1,000

The married population in various countries has been found to be made up as follows :—

	Not before Married		Was Married before		
	Husband	Wife	Husband	Wife	Total
England . .	432	452	68	48	1,000
France . . .	440	461	60	39	1,000
Prussia . .	421	451	79	49	1,000
Austria. . .	411	442	89	58	1,000
Italy . . .	430	461	70	39	1,000
Holland . .	419	451	81	49	1,000
Sweden . .	443	472	57	28	1,000

The average age at which widowers and widows re-enter matrimony, and the ratio of second marriages, are as follows :—

	Marrying Age of		Second Marriages in 1000	
	Widowers	Widows	Husband	Wife
England . . .	42.2	39.0	139	98
France . . .	42.4	38.0	119	78
Belgium . . .	42.5	40.0	122	87
Holland . . .	41.6	40.3	152	102

The average duration of marriages is as follows :—

	Years		Years		Years
England .	27	Russia . .	30	Holland . .	23
France . .	26	Norway . .	24	Belgium. .	23
Germany .	26	Sweden . .	23	Jews . . .	25

In England, if the mother die first, the father survives 9½ years, but if the father die first, the mother survives 11½ years. In the English Census of 1871, the married people living had an average age of 42 years, and had been married 15 years. An enumeration of the inhabitants of Aggerhus, Norway, in 1763, showed that 150 couples had been over eighty years married. There are at least two cases on record of persons married over a dozen times ; James Gay, who died at Bordeaux in 1772, aged 101, was married 16 times, having no children by any of his wives ; Margaret M'Dowal, Scotland, died in 1768, having survived 13 husbands, aged 106.

Consanguineous marriages, that is, of uncles, nieces, aunts, nephews, and cousins, appear to be of a deteriorat-ing tendency. Bertillon, indeed, says that they do not originate any new infirmity, while they multiply any hereditary defect, but most other writers show that they are a fertile source of new ills. Bemiss says 27 per cent. of such marriages prove barren ; Lent, that 35 per cent. of the children are deaf mutes ; Boudin, that 28 per cent. of deaf mutes in France are children of marriages within the fourth degree ; Darwin, that 35 per 1000 of blind deaf mutes and lunatics in England are children of cousins-german ; and Poucet, that 20 per cent. of such marriages in Mexico are childless. Boudin says that for one deaf mute of ordinary marriages there will be 18 if the parents are cousins, 37 if uncle and niece, and 70 if nephew and aunt. Marriages of cousins are commoner among Protestants than Catholics, and still more so among Jews : hence it is found at Berlin that there are—

3 deaf mutes among		10,000	Catholics
6 ,,	,,	10,000	Protestants
27 ,,	,,	10,000	Jews

Of 1549 marriages contracted in Prussia in 1889 between blood relations, 1422 were between cousins, 110 between uncles and nieces, and 16 between aunts and nephews.

The ratio of consanguineous among 10,000 marriages, in the various countries, is as follows :—

Prussia . . 67	England . . 75	France. . . 126
Italy . . . 69	Alsace. . . 107	Jews . . . 230

These marriages are increasing in France, but diminishing in Alsace and Italy, viz. :—

	Date	No. per 10,000	Date	No. per 10,000
France .	1853–60	97	1861–71	126
Alsace .	1858–65	143	1872–75	107
Italy . .	1868–71	84	1872 75	69

They are always more frequent in rural districts than in towns :—

	Per 10,000 Marriages		
	Rural	Urban	General
England . . .	79	71	75
France	130	115	126
Alsace	121	41	107

Darwin says that 450 per 10,000 marriages among the nobility of England are consanguineous, being six times the average of such marriages in England ; and it appears that 19 per cent. of the English nobility are childless, which is more than three times the averages for England. It appears, however, that in France the ratio of children to a marriage is highest where consanguineous marriages are most frequent ; and that the blind, deaf mutes, and insane are decidedly increased by such marriages. The returns of all France for five years ending 1865 show the eighty-nine departments thus :—

Departments	Consanguineous per 10,000 Marriages	Children to 100 Marriages	Blind, Insane, &c., per 100,000 Population
20	69	303	254
20	103	300	275
20	124	320	282
20	153	312	348
9	195	329	345
89	119	308	290

Furthermore, the increase in France of blind, deaf

mutes, and insane has been simultaneous with a rise in this kind of marriages :—

Period	Consanguineous per 10,000 Marriages	Blind, Insane,&c., per 100,000 Population
1853–55 . . .	93	224
1856–60 . . .	100	279
1861–65 . . .	119	290
1866–71 . . .	126	292

The above table seems to show that consanguineous marriages increase the number of blind, insane, &c.

The ratio of these marriages of 100,000 in France, during fifteen years ending 1875, was as follows :—

	Towns	Rural	All France
Nephew and aunt . .	16	24	21
Uncle and niece . .	60	56	58
Cousins. . . .	960	1,190	1,131
Total . .	1,036	1,270	1,212

The marriages with deceased wife's sister or husband's brother averaged 355 per 10,000 marriages.

In Italy in 1872–75 the ratio of consanguineous in 10,000 marriages was as follows :—

Venice.   .   .   24 | Lombardy   .   100 | Piedmont .   .   131
Naples   .   .   30 | Sicily   .   .   .   117 | Liguria   .   .   183

The ratio of the whole kingdom was 69, as already shown. In seven years ending 1874, of all consanguineous marriages 92 per cent. were of cousins, and 8 per cent. of uncles or aunts with nieces or nephews.

Regarding barrenness in marriages, it is commonly believed that 5 per cent. of marriages in Great Britain are sterile, and that sterility among women is half again more frequent than among men. A census taken in Prussia on this subject in 1842 showed 11 per 1000 males, 29 per 1000 females, and 34 per 1000 marriages were sterile.

The marriage-rate per 1000 inhabitants yearly in various countries was as follows :—

Persons Married Yearly per 1000

	1841–50	1871–80		1841–50	1871–80
England	16.1	16.3	Sweden · .	15.0	13.6
France .	15.8	15.9	Holland .	14.4	16.1
Germany	17.4	17.7	Belgium .	13.8	14.6
Austria .	...	17.1	Denmark .	15.8	15.6
Hungary	...	20.6	Spain . .	...	15.1
Italy . .	...	15.3	Switzerland	...	15.3

From the above it appears that notwithstanding the improved condition of the working-classes, and the reduced price of food in all countries since 1850, the marriage-rate has not risen perceptibly. In Sweden and Denmark it has fallen. The following table, from observations in 1857–66, shows the marriage-rate among adults at various ages :—

Age	Married Yearly among 1000 of Each Class					
	England		France		Belgium	
	Men	Women	Men	Women	Men	Women
20–25	121	131	58	108	34	63
25–30	143	104	114	110	83	89
30–35	104	64	114	80	84	78
35–40	81	45	88	49	71	59
40–45	55	27	47	21	46	31
45–50	32	3	25	2	19	2

The marriage-rate yearly per 1000 persons of either sex between the ages of 15 and 60 was as follows :—

	Men	Women			Men	Women
England . .	69	62	Belgium	. .	41	44
France . . .	55	59	Denmark	. .	60	61
Holland . .	54	51	Norway	. .	56	52

Observations in 1866–72 showed that the annual marriage-rate of 1000 unmarried persons, male and female, between 15 and 60 years of age was as follows :—

England . . 65 | Prussia . . . 71 | Belgium . . 51
France. . . 64 | Italy . . . 58 | Switzerland . 52

UNITED KINGDOM

In 1871 the married and unmarried of the three kingdoms stood in the following ratios :—

	England		Scotland		Ireland		United Kingdom	
	Male	Female	Male	Female	Male	Female	Male	Female
Married	35.1	33.9	30.7	28.8	29.5	28.4	33.6	32.6
Unmarried	61.3	58.6	66.0	62.8	66.8	62.1	62.8	59.4
Widowed	3.6	7.5	3.3	8.4	3.7	9.5	3.6	8.0
Total . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The married ratio in Ireland is remarkably low. The variations of condition in England since 1851 have been as follows :—

	Males			Females		
	1851	1861	1871	1851	1861	1871
Married . .	33.7	35.0	35.1	32.9	33.9	33.9
Unmarried . .	62.6	61.3	61.3	59.8	58.8	58.6
Widowed . .	3.7	3.7	3.6	7.3	7.3	7.5
Total . .	100.0	100.0	100.0	100.0	100.0	100.0

The variations in Scotland showed an increase of married people from 1851 to 1871, viz. :—

	Males			Females		
	1851	1861	1871	1851	1861	1871
Married . . .	29.9	30.9	30.7	27.8	28.6	28.8
Unmarried . .	66.8	65.8	66.0	63.8	63.0	62.8
Widowed . .	3.3	3.3	3.3	8.4	8.4	8.4
Total . .	100.0	100.0	100.0	100.0	100.0	100.0

The figures for Ireland in 1881 show a rapid decline of the married ratio since 1871, viz. :—

	Males		Females	
	1871	1881	1871	1881
Married . .	29.5	27.6	28.4	27.0
Unmarried .	66.8	68.5	62.1	63.4
Widowed .	3.7	3.9	9.5	9.6
Total .	100.0	100.0	100.0	100.0

The marriage rate per 1000 population in the three kingdoms showed thus :—

England		Scotland		Ireland		U. Kingdom	
Year	Per 1000	Year	Per 1000	Year	Per 1000	Year	Per 1000
1841–50	16.1	...	...	...	...	...	...
1851–60	16.9	1855–60	13.7	...	...	...	...
1861–70	16.7	1861–70	14.1	1864–70	10.5	1861–70	15.3
1871–80	16.3	1871–80	14.5	1871–80	9.3	1871–80	15.2
1881–89	14.8	1881–89	13.2	1881–89	8.7	1881–89	13.8

The ratios of marrying age in England in 1871–80 compare with those of 1838 as follows :—

Age	1838		1871–80	
	Men	Women	Men	Women
Under 20 .	33	142	35	149
20–30 . .	758	697	731	680
30–40 . .	127	105	144	111
Over 40 . .	82	56	90	60
Total .	1,000	1,000	1,000	1,000

FRANCE

The ratios of married and unmarried in the whole population were at various dates as follows :—

Year	Males				Females			
	Unmarried	Married	Widowers	Total	Unmarried	Married	Widows	Total
1806	588	366	46	1,000	560	364	86	1,000
1836	578	377	45	1,000	542	363	95	1,000
1856	555	396	49	1,000	519	386	95	1,000
1866	545	403	52	1,000	498	404	98	1,000
1876	533	413	54	1,000	482	409	109	1,000

The marriage rate per 1000 population was as follows :—

Period		Period		Period	
1801–10 .	15.6	1831–40 .	15.9	1861–70 .	15.8
1811–20 .	15.8	1841–50 .	15.9	1871–80 .	15.9
1821–30 .	15.5	1851–60 .	15.8	80 years .	15.8

The *Demografia* of 1880 gives a table of the ages in France at which men or women become widowed, in ratios thus :—

Age at Loss of Spouse	Town		Rural	
	Men	Women	Men	Women
Under 25 . . .	22	35	14	22
25–30 . . ,	91	78	56	46
30–40 . . .	231	198	178	158
40–50 . . .	206	220	171	190
Over 50 . . .	450	469	581	584
Total . .	1,000	1,000	1,000	1,000

There is a notable difference between town and country population as to the distributiun of marriages in months. Taking the year's total as 1200, we find thus for the years 1861–65 :—

	Town	Rural	France		Town	Rural	France
January . .	114	135	128	July . . .	99	91	94
February . .	135	164	152	August . .	88	63	72
March . . .	54	49	52	September .	99	85	90
April . . .	115	109	111	October . .	107	98	101
May . . .	99	95	97	November .	120	139	131
June . . .	110	120	116	December .	60	52	56
Half year . .	627	672	656	Half year .	573	528	544

GERMANY

The marriage rate of Prussia for sixty years down to 1876 averaged 18.1 per thousand. After the wars of 1815 and 1871 it rose 10 per cent. in the following year, and after the cholera visitations of 1831, 1848, 1856, 1866, and 1873, there was a rise of 1 per cent. Observations for eighteen years ending 1861 showed the marriage rate among the population over fourteen years of age was as follows :—

Among		Per 1000 Yearly	
		Males	Females
Christians		54.0	52.5
Jews		49.0	44.9

In the same period it was found that the adult male and female population of Prussia showed thus :—

Marrying Age		Men	Women
Under 20		8	87
20–30		487	556
30–40		178	128
40–50		51	34
Over 50		24	8
Never marry		252	187
Total . .		1,000	1,000

Of 1000 men who marry, it is found that—

332 marry younger women
579 ,, women of same age
89 ,, older women

Of 1000 Catholics who marry, the ratios show—

In	Married to		
	Catholics	Protestants	Total
Towns . . .	863	137	1,000
Rural parts . .	965	35	1,000
All Prussia . .	935	65	1,000

In Bavaria, it appears that of 1000 marriages 681 are Roman Catholics, 254 Protestants, and 65 mixed. The duration of marriage in Leipzig, until death of husband and wife, shows the following ratios :—

Years					Ratio
Less than 5 .	.	.	.	.	186
5–10 .	.	.	.	.	163
10–20 .	.	.	.	.	243
20–30 .	.	.	.	.	198
30–40 .	.	.	.	.	143
Over 40 .	.	.	.	.	67
Total .	.	.	.	1,000

The Census of 1885 gave the numbers of married and unmarried as follows :—

	Prussia			Germany		
	Males	Females	Total	Males	Females	Total
Unmarried . . .	8,670,000	8,355,000	17,025,000	14,250,000	13,895,000	28,145,000
Married . . .	4,775,000	4,795,000	9,570,000	7,910,000	7,945,000	15,855,000
Widowed . . .	450,000	1,270,000	1,720,000	775,000	2,080,000	2,855,000
Total .	13,895,000	14,420,000	28,315,000	22,935,000	23,920,000	46,855,000

AUSTRIA-HUNGARY

In Vienna the observations for 1872–76 showed :—

Husband older .	. 503	Catholics . .	. 873
Wife older . .	. 129	Jews . . .	. 77
Both same age .	. 368	Protestants .	. 50
Total	1,000	Total	1,000

The marrying age for men averaged 32, women 27 years ; and the mean duration of marriage was 16 years.
In Hungary, in 1874, the conditions of the people were :—

		Males	Females
Unmarried .	.	556	503
Married .	.	412	407
Widowed .	.	32	90
Total .	.	1,000	1,000

The marrying age in Sweden was as follows :—

Years	Men			Women			Men and Women		
	Urban	Rural	Total	Urban	Rural	Total	Nobles	Citizens	Peasants
Under 26 . . .	169	216	208	289	385	370	95	143	289
26–35	601	564	570	529	471	480	529	599	556
36–50	199	173	177	171	129	136	308	220	126
Over 50	31	47	45	11	15	14	68	38	29
Total . .	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

NORWAY

The marriage-rate was per 1000 inhabitants as follows :—

Period		Period		Period	
1801–25 . . 16.2		1836–45 . . 14.5		1856–65 . . 14.4	
1826–35 . . 15.0		1846–55 . . 15.5		1866–75 . . 13.7	

The condition of the adult population, men and women, between the ages of 15 and 60 was in 1875 as follows :—

	Men			Women		
	Town	Rural	Total	Town	Rural	Total
Unmarried . .	480	470	472	474	446	451
Married . .	492	506	504	456	507	498
Widowed . .	28	24	24	70	47	51
Total . .	1,000	1,000	1,000	1,000	1,000	1,000

The marrying age for men is rising, for women falling :—

	Average Age at Marriage		
Period	Men		Women
1841–50 . . . . 30.4	...		28.1
1861–70 . . . . 30.9	...		27.9

ITALY

Observations for 1875–77 showed the marriage rate as follows :—

Naples . . 18.4 | Lombardy . 17.0 | Tuscany . 15.8
Sicily . . 17.4 | Piedmont . 16.6 | Venice . . 15.4

The general rate for the kingdom was 16.2.

SWEDEN

In 1870 the male and female population over 15 years of age showed thus :—

		Men	Women
Unmarried . .		422	403
Married . .		521	472
Widowed . .		57	125
Total .		1,000	1,000

Taking the year as 1200, the marriages according to months were :—

January . . 50 | May . . . 84 | September . 66
February . 59 | June . . . 102 | October . . 158
March . . 80 | July . . . 66 | November . 173
April . . . 102 | August . . 47 | December . 213

Taking the year as 1200, the marriages according to months stood thus :—

January . . 75 | May . . . 77 | September . 72
February . 48 | June . . . 158 | October . . 132
March . . 65 | July . . . 146 | November . 144
April . . . 110 | August . . 54 | December . 118

BELGIUM

In Belgium the different Censuses showed as follows :—

Males

	1846	1866	1880
Unmarried . .	1,417,000	1,546,000	1,761,000
Married . . .	662,000	766,000	879,000
Widowed . . .	85,000	108,000	118,000
Total . .	2,164,000	2,420,000	2,758,000

Females

	1846	1866	1880
Unmarried . .	1,355,000	1,466,000	1,681,000
Married . . .	661,000	763,000	876,000
Widowed . . .	158,000	180,000	205,000
Total . .	2,174,000	2,409,000	2,762,000

	Both Sexes		
	1846	**1866**	**1880**
Unmarried . .	2,772,000	3,012,000	3,442,000
Married . . .	1,323,000	1,529,000	1,755 000
Widowed . . .	243,000	288,000	323,000
Total . .	4,338,000	4,829,000	5,520,000

Of males over 18 years of age the conditions were :—

	1846	**1866**	**1880**
Unmarried . .	582,000	646,000	672,000
Married . . .	662,000	766,000	879,000
Widowed . . .	85,000	108,000	118,000
Total . .	1,329,000	1,520,000	1,669,000

Of females over 18 the returns showed thus :—

	1846	**1866**	**1880**
Unmarried . .	545,000	576,000	611,000
Married . . .	660,000	761,000	874,000
Widowed . . .	158,000	180,000	205,000
Total . .	1,363,000	1,517,000	1,690,000

The condition of persons marrying showed these ratios :—

	1841–50	1851–60	1861–70	1871–80
Bachelor and maid .	80.8	82.1	82.6	83.7
Bachelor and widow	5.0	4.9	4.9	5.1
Widower and maid .	11.5	10.1	9.1	7.8
Widower and widow	2.7	2.9	3.4	3.4
Total . .	100.0	100.0	100.0	100.0

The ages of the parties marrying showed as follows :—

	Men		Women	
	1841–50	1871–80	1841–50	1871–80
Under 25 . . .	19.3	21.6	35.6	41.1
25–30 . . .	33.5	34.3	29.6	28.0
30–40 . . .	32.9	30.4	25.2	21.8
40–50 . . .	10.3	9.1	7.6	6.8
50–60 . . .	2.8	3.4	1.7	1.8
60–70 . . .	1.0	1.0	0.3	0.5
Over 70 . . .	0.2	0.2	0.0	0.0
Total .	100.0	100.0	100.0	100.0

SWITZERLAND

Of 1000 men married at Geneva there were :—

	1847–51	1872–76
Genevans . . .	641	305
Foreigners . . .	359	695
Total . .	1,000	1,000

The children to 100 foreign fathers were 263 ; to Genevans, 242.

RUSSIA

The marrying rate per 1000 inhabitants in 1875 was 20.2 among Greeks, 16.2 among Roman Catholics, 18.0 among Armenians, and 14.6 among Protestants.

PORTUGAL

In 1860 the marriage rate was 12.2 per 1000, and in 1864 the population was composed thus :—

	Male	Female	Total
Unmarried . . .	635	617	626
Married	321	296	308
Widowed	44	87	66
Total . .	1,000	1,000	1,000

ALGERIA

In 1872 the European population of the colony was :—

	Male	Female
Unmarried	621	504
Married	342	384
Widowed	37	112
Total .	1,000	1,000

FINLAND

The marriage rate averaged 16.0 from 1812 to 1840, and only 15.5 from 1851 to 1865.

MATCHES

Sweden and Norway export 20,000 tons of wooden matches yearly, being nearly one-third of the quantity consumed in Europe per annum. The tax on matches in France averages 4d. per inhabitant.

MEDICINE

The number of physicians and surgeons in various countries is stated as follows :—

	Number	Per Million Population
England	15,090	550
Scotland	3,455	850
Ireland	3,560	630
United Kingdom . .	22,105	578
Russia	13,475	155
Spain	5,200	305
France	14,380	380
Germany	16,270	355
Austria	10,690	275
Italy	8,580	280
Holland	1,860	410
Belgium	2,160	390
Norway	502	275

The above is exclusive of army and navy doctors, of which there are these returns :—

French navy	666
Russian navy	413
German navy	50
United States navy	221

Dispensaries are maintained in the United Kingdom to give relief gratis to the poor. In England 972,000 persons received medical attendance and medicines gratis. In Ireland the cost of these institutions is £150,000 a year. In France 230,000 persons annually receive medicine free at a cost of £58,000. The number of medical students in London in October 1882 was 949. The Italian Universities turn out 630 physicians and surgeons yearly. The French Universities made 33,000 M.D.'s in eighty-two years, viz. :—

Years	No.	Years	No.
1801–14 . . .	3,178	1849–69 . . .	9,145
1815–30 . . .	6,423	1870–82 . . .	5,901
1831–48 . . .	8,468	82 years . . .	33,115

The ratio of physicians in France is declining : in 1847 it was 510 per million, the progress of sanitary science

causing this decline, or perhaps the heavy tax on doctors, which Leroy-Beaulieu says produces £500,000 a year.

The progress of medicine in Austria proper is shown thus :—

	1840	1886
Physicians, &c.	9,440	13,228
Midwives	14,100	16,940
Total . .	23,540	30,168

The returns for Belgium show thus :—

	1850	1880
Physicians, &c.	2,786	3,189
Midwives	1,128	2,176
Total . .	3,914	5,365

In the above returns apothecaries are counted with physicians.

In Holland there are 803 graduated M.D.'s, 950 surgeons, 106 pensioned army doctors, 66 dentists, 750 midwives, and 752 apothecaries.

The death-rate of physicians is very high. The French army in the Crimea lost 7 per cent. of officers and 18 per cent. of surgeons.

The death-rate in England of physicians and civilians differs as follows :—

	Age 20–54
Civilians	12 per 1000
Married doctors	19 ,,
Unmarried doctors	26 ,,

During the typhus plague in Ireland in 1843–47, no fewer than 66 per thousand of physicians died. Among the people 9 per cent. of deaths were from typhus, but among physicians 32 per cent.

MENSTRUATION

The medium age at which it commences is stated in the *Dic. des Sciences Médicale* as follows :—

	Years		Years
Marseilles . .	13.9	Manchester . .	15.3
Corfu . .	14.0	Lyons . .	15.5
Hungary . .	14.1	Vienna . .	15.7
London . .	15.1	Halle . .	16.0
Paris . .	15.2	Copenhagen .	16.8

Despine and Boismont give the following results respecting 8600 girls in France as the average ages at which it begins :—

	Years	Months	Days
Under 5 feet . . .	14	7	14
Over 5 ,, . .	14	9	21
Dark eyes . . .	14	5	8
Blue ,, . . .	14	11	24

According to Guy and Murphy the average ages in England are :—

	Years	Months	Days
London . . .	14	11	6
Manchester . . .	14	10	9
Rural population . .	16	1	24
Urban . . .	15	4	9

In Calcutta and Bombay the averages are as follow :—

Years		Calcutta	Bombay
Under 12 . . .		29.4	15.2
12–14 . . .		47.8	48.2
14–16 . . .		18.9	24.9
Over 16 . . .		3.9	11.7
Total . .		100.0	100.0

Dubois gives the age at which it stops as follows :—

	Years		Years
Java . . .	30.0	Poland . . .	47.1
India . . .	32.5	Norway . . .	48.1
France . . .	45.5	Portugal . .	50.0

METALS

The production is stated under *Mining*.

	Conductors of	
	Heat	Electricity
Gold	100	94
Platinum . . .	98	16
Silver	97	74
Copper	90	100
Iron	37	16
Zinc	36	29
Tin	30	15
Lead	18	8

A wire 0.84 of a line in diameter will sustain the following weights :—

Lead . . .	28 lbs.	Silver . . .	187 lbs.
Tin . . .	35 ,,	Platinum . .	274 ,,
Zinc . . .	110 ,,	Copper . . .	302 ,,
Gold . . .	150 ,,	Iron . . .	549 ,,

The fluid density is as follows :—

Zinc . . .	6.48	Copper . . .	8.22
Iron . . .	6.88	Silver . . .	9.51
Tin . . .	7.03	Lead . . .	10.37

METEOROLOGY

Air.—In its pure state it is composed thus :—

Nitrogen	77
Oxygen	21
Other compounds	2
	100

The percentage of oxygen varies as follows :—

Locality	Percentage	Locality	Percentage
Sea-shore	21.00	Mines	20.50
Confined houses . .	20.75	When candles go out	18.50

The following table shows how oxygen varies with climate :—

Ben Lomond . . .	20.940	Berlin	20.953
Atlantic	20.942	Paris	20.956
Lyons	20.942	Geneva	20.956
Mediterranean . .	20.947	Andes	20.963
Madrid	20.949		

Air travels in England in healthy years about $4\frac{1}{4}$ miles an hour, and $3\frac{1}{2}$ in unhealthy. The percentage of carbonic acid ranges thus :—

In country	.03	In fogs	.07
,, town	.04	,, crowded lanes . .	.13
,, hospitals	.05	,, theatres	.30

Each adult inhales a gallon of air per minute, and consumes daily 30 oz. of oxygen. For the conversion of this oxygen a certain amount of food is required—say 13 oz. of carbon for a male, and 11 oz. for a female, equivalent to 3 lbs. bread and $2\frac{1}{2}$ lbs. respectively. The proper allowance of air in barracks is 600 cubic feet per man in Europe, and 1000 in India : for hospitals, 1200 cubic feet per bed in Europe, and 1800 in India. Horses require in England 1600 cubic feet each, or nearly as much as three men.

The Scottish Meteorological Society report on the presence of ozone as follows :—May, 6.2 ; November, 5.3 ; annual average, 6.0.

The atmosphere of Paris shows the prevalence of ozone and bacteria in the various months as follows :—

	Ozone at Mont Souris per 1000 Cubic Metres Air	Bacteria per Cubic Metre Air	
		Mont Souris	Rue Rivoli
January . . .	3	380	2,200
February . .	9	255	1,850
March . . .	8	380	4,600
April	7	380	6,400
May	7	420	6,900
June	9	400	6,450
July	12	815	6,370
August . . .	8	670	6,350
September . .	8	630	6,400
October . . .	8	480	5,100
November . .	12	290	3,800
December . .	6	230	2,520
Average. . .	8	444	4,910

The foregoing is taken from the *Dic. des Sciences Medicales*, but M. Miguel gives other results for 1882–83 as follows :—

	Microbes per Cubic Metre	
	Mont Souris	Rue Rivoli
Spring	550	1,900
Summer	?	3,960
Autumn	115	2,060
Winter	115	2,040
Yearly average . . .	...	2,490

He adds that at a height of 6000 feet in the Swiss mountains no bacteria were found, and gives this table :—

Bacteria in Ten Cubic Metres of Air.

1. At a height of 2000 metres . . . 0
2. On the Lake of Thun (560 metres) . 8
3. Near the Hotel Bellevue, Thun . . 25
4. In a room of the hotel . . . 600
5. In the park at Mont Souris . . . 7,600
6. In the Rue de Rivoli, Paris . . 55,000

M. Miguel's researches on the air of the wards of hospitals were carried out at the Hotel Dieu and the Hospital Notre Dame, and with the result that for the whole year the hospital air contained on an average 11,000 bacteria per cubic metre, as against 850 bacteria per cubic metre of the air of the Rue de Rivoli. The hospital bacteria reached their minimum at the time when the windows could be kept open, in June, July, and August—average, 5500—at a time when the bacteria in the street had attained a maximum of about 13,000, or 50 per cent. in excess of the average. The maximum of the hospital (28,000) was reached in January, when the weather was cold and the windows shut, and the average in the street had fallen to 160. Microbes multiply so fast that one may become 16 millions in twenty-four hours.

Barometer.—In London it usually ranges between 28.700 and 30.700, but it has exceeded the latter figure three times on record :—

In 1778 . . . . . . 30.935
February 11, 1849 . . . . . 30.895
January 18, 1882 . . . . . 30.983

The lowest reading in London was on Christmas Day, 1821, namely, 28.016. The lowest reading known in the British Islands was at Ochtertyre, near Crieff, Jan. 26, 1884: 27.332. The highest reading known also occurred in Scotland, Jan. 8–9, 1820, near Leith, when the reading was 31.065. The highest reading recorded in England was at St. Leonards, Hastings, Jan. 18, 1882: 30.990.

Mr. Glaisher's barometer in his various balloon ascents marked as follows :—

Miles High	Inches	Miles High	Inches
1 . . .	24.7	4 . . .	13.7
2 . . .	20.3	5 . . .	11.3
3 . . .	16.7		

He therefore estimates for 10 miles 4.2 and for 15 miles 1.6 inches.

The mean height of barometer varies according to latitude, and in the northern hemisphere averages as follows :—

Degree of Latitude	Barometer	Degree of Latitude	Barometer
10 . .	29.98	45 . . .	30.00
20 . .	30.06	50 . . .	29.81
30 . .	30.11	60 . . .	29.80
40 . .	30.02	67 . . .	29.67

But in latitudes south of 25° S. the decrease is very much more rapid, the mean elevation in 55° S. being about 29.30. It also varies according to elevation, the reading diminishing approximately at the rate of 1 inch for 1000 feet. The actual mean readings at different places are as follows :—

Place	Feet over Sea	Mean Height of Barometer	Boiling-point (Fahrenheit).
Sea-level . .	0	30.00	212.0
Rome . . .	151	29.76	211.6
Milan . . .	420	29.45	211.1
Moscow . .	984	28.82	210.2
Geneva . .	1,221	28.54	209.5
Munich . .	1,765	27.95	208.6
Madrid . .	1,995	27.72	208.0
Briançon . .	4,285	25.39	203.9
St. Remo . .	5,265	24.45	202.1
St. Gothard .	6,808	23.07	199.2
Mexico . .	7,471	22.52	198.1
Bogota . .	8,731	21.42	195.6
Quito . . .	9,541	20.75	194.2
Antisana . .	13,455	17.87	187.4

Atmospheric pressure, moreover, varies at the same place with the season. For example, at Ben Nevis, height 4300 feet, the mean pressure marks thus :—

January . .	25.16	July . . .	25.43
February . .	25.49	August . .	25.42
March . .	25.39	September .	25.36
April . .	25.38	October .	25.45
May . .	25.47	November .	25.09
June . .	25.68	December .	25.09

The mean pressure for the year was 25.37, or nearly the same as that of Briançon, which is 4300 feet over sea-level.

Martin publishes the following table of the average number of monthly oscillations of the barometer at various towns in France :—

	Summer	Winter	Year
Bordeaux . . .	14	29	22
Dijon	11	26	19
Marseilles . . .	17	23	20
Metz	14	26	20
Montpellier . .	13	23	18
Mulhouse . . .	13	27	20
Nantes	15	29	22
Paris	17	31	24
Rochelle . . .	16	32	24
Strasburg . . .	15	29	22

Clouds.—The University of Upsala has (1884–85) determined the average height of clouds thus :—

	Yards		Yards
Stratus . . .	685	Strato-cumulus .	2,560
Nimbus . . .	1,680	Cirro-cumulus .	7,110
Cumulus . . .	2,040	Cirrus . .	9,760

Evaporation.—Gasparim's table estimates 25 inches for the level parts of France, 27 for the western coast, 35 for the hilly country, and 90 for the Southern Departments. He also gives twelve cities thus :—

	Inches		Inches		Inches
Arles . . .	90	Marseilles .	96	Rome . . .	98
Bordeaux .	82	Paris . . .	24	Rotterdam .	27
Geneva . .	48	Poitiers . .	32	Toulouse .	26
Lille . . .	36	Rochelle . .	25	Troyes . .	33

Hail.—1656, July 20th, Norwich, wrecked houses and killed many persons.

1697, May 4th, killed sheep in many parts of England.

1775, May 13th, Murcia, Spain, hailstones like oranges, weighing 20 oz.

1844, in Languedoc, pieces of ice fell weighing 11 lbs.

1874, New Jersey, U.S., hailstones like turkey eggs.

Damage to crops in France by hail since 1850 has averaged £1,420,000 per annum.

Magnetic Observations.—At Paris the magnetic declension was recorded thus :—

Year			Year			Year		
1580.	.	11.30 E.	1700	.	8.10 W.	1835 .	22.4	W.
1618.	.	8.0 ,,	1780	.	19.55 ,,	1851 .	20.25	,,
1663.	.	0	1805	.	25.5 ,,	1861 .	19.6	,,

The variations of the needle at Paris showed the following angle of inclination :—

Year			Year			Year		
1671	. .	75.0	1798	. .	69.51	1831	. .	67.40
1754	. .	72.15	1806	. .	69.12	1851	. .	66.35
1780	. .	71.48	1820	. .	68.20	1861	. .	66.7

The following table of magnetic intensity is chiefly from Humboldt :—

		North Latitude	Magnetic Intensity
Peruvian Andes	.	...	1,087
Carthegena	. .	10.25	1,294
Naples .	. .	40.50	1,274
Lyons .	. .	45.46	1,333
Paris .	. .	48.52	1,348
St. Petersburg	. .	59.46	1,410
Berlin .	. .	52.51	1,366
Christiania .	. .	59.55	1,419
Brussels .	. .	50.52	1,374
Baffin's Bay .	. .	12.43	1,590
Spitzbergen .	. .	79.40	1,562
New York .	. .	40.43	1,803

Meteors.—November 27, 1885, the Greenwich Observatory counted 3000 between 6 and 11 P.M. : first hour at intervals 40 per minute ; at 9 P.M. about 20.

On November 14, 1868, the Observatory at Philadelphia counted 4800 between 12.20 and 5 A.M.

Mineral Heat.—The temperature of water being taken as 100, that of the various minerals is as follows :—

Lead	.	.	.	.	29	Copper	.	.	.	95
Mercury	.	.	.	.	33	Iron	.	.	.	110
Silver	.	.	.	.	56	Glass	.	.	.	117
Zinc	.	.	.	.	93	Sulphur	.	.	.	188

The average rainfall is heaviest near the Equator, and diminishes as the latitude rises, viz. :—

Latitude									Inches Rainfall
0	.	.	.	.	.	.	.	.	100
20	.	.	.	.	.	.	.	.	80
30	.	.	.	.	.	.	.	.	60
40	.	.	.	.	.	.	.	.	40
50	.	.	.	.	.	.	.	.	30
60	.	.	.	.	.	.	.	.	20
70	.	.	.	.	.	.	.	.	10
80	.	.	.	.	.	.	.	.	5

Rainfall.—The rainfall according to seasons (Gasparim) is as follows, in inches :—

		Spring	Summer	Autumn	Winter	Year
England .	.	6	8	10	8	32
Scandinavia	.	3	7	6	3	19
Russia	.	2	7	4	4	17
France	.	6	9	7	5	27
Germany	.	5	8	6	5	24
Italy .	.	5	5	7	20	37
Europe .	.	4	7	7	5	23
United States	.	11	11	12	11	45
Atlantic States .		11	11	11	3	36
Southern .	.	13	17	11	14	55
Western .	.	6	11	6	3	26
Pacific .	.	12	7	18	25	62
Australia .	.	8	9	12	6	35
West Indies .	.	31	22	27	8	88
Sierra Leone	.	12	65	46	2	125
Patagonia .	.	3	3	6	3	15

The heaviest rainfalls recorded in the United Kingdom have been :—

7 inches at Ardrishaig, Argyle, on 7th Dec. 1863.
4½ inches at London on 13th April 1878.

It is stated that 24 inches have fallen at Bombay in 24 hours, also 30 inches on the Khasi Hills, India, 30 at Genoa, and 33 at Gibraltar.

The wettest place in England is Seathwaite, 145 inches ; and in the world Cherrapungi, in South-Western Assam, where the average for 15 years is 493 inches, reaching in 1861 up to 905 inches.

The rainfall of the United Kingdom (54 stations), European Continent (45 stations), and the United States (34 stations), from 1824 to 1867, was :—

Period	Inches per Annum		
	United Kingdom	European Continent	United States
1824–30 . .	29	25	44
1831–40 . .	29	29	40
1841–50 . .	31	29	42
1851–60 . .	33	26	40
1861–67 . .	38	25	...

The rainfall of various countries reduced to horsepower is valued as follows :—

	Horse-power		Horse-power
United Kingdom	9,300,000	Russia .	77,700,000
France .	12,000,000	Italy .	8,500,000
Germany .	11,800,000	United States .	430,200,000

The average in inches is as follows, yearly :—

	Inches		Inches		Inches
Aberdeen . .	30	Baltimore. .	41	Bologna . .	22
Adelaide . .	20	Barcelona . .	17	Bombay . .	85
Agen . . .	27	Barbadoes .	58	Bordeaux . .	29
Agra . . .	23	Bath . . .	30	Boston . .	45
Alexandria .	10	Bayonne . .	52	Bourbon . .	47
Algiers. . .	32	Batavia . .	78	Brescia . .	50
Alicante . .	71	Baton Rouge	61	Brest . . .	56
Allahabad .	27	Belfast . . .	32	Brighton . .	31
Ancona . .	29	Beauvais . .	22	Brisbane . .	43
Apulia . . .	22	Bergen . .	89	Bristol . . .	23
Arles . . .	23	Berlin . . .	24	Brussels . .	29
Armagh . .	36	Bermuda . .	55	Buda-Pesth .	17
Asuncion . .	82	Benares . .	42	Buenos Ayres	33
Auckland . .	44	Bengal . . .	36	Bushire . .	13
Augsburg . .	41	Berne . . .	46	Cairo . . .	1
Aurillac . .	46	Besançon . .	25	Calais . . .	29
Auzerre . .	26	Beziers . .	17	Calcutta . .	71
Azores . . .	30	Birmingham .	24	Cambray . .	17
Bag. Bigorre	54	Black Sea. .	61	Cambridge .	24
Baku . . .	14	Blois . . .	25	Canary Islands	83

	Inches		Inches		Inches		Inches		Inches		Inches
Cannes	36	Edinburgh	31	Lisbon	27	Naples	31	Quetta	8	Texas	12
Canton	39	Elgin	24	Liverpool	35	Nashville	51	Rangoon	173	Ticino	67
Capetown	23	Erfurth	14	London	25	Natchez	58	Ratisbon	23	Tiflis	20
Caracas	155	Feejee Islands	50	Louisville	49	New Brunswick	51	Reikjavik	30	Toronto	38
Carcasonne	30	Fernando Po	102	Lucca	55	Newfoundland	58	Rheims	19	Toulon	24
Carlsruhe	27	Florence	38	Lucknow	37	New Orleans	51	Rio Janeiro	53	Toulouse	25
Castille	12	Friburg	48	Lyons	28	New York	43	Rhone Valley	38	Tours	22
Catania	28	Galveston	52	Macao	71	New Zealand	53	Rochelle	25	Trieste	43
Cayenne	116	Geneva	33	Macori	30	Nice	29	Rohilcund	36	Trinidad	64
Chalons	25	Genoa	50	Madeira	25	Nismes	21	Rome	30	Truro	44
Chambery	41	Ghauts Mtns.	173	Madras	46	Nilgherries	65	Rotterdam	25	Tübingen	26
Charleston	54	Gibraltar	44	Madrid	12	Norfolk, U.S.	53	Rouen	27	Tucuman	42
Cincinnati	46	Gironde	23	Magellan Straits	15	Norwich	24	St. Bernard	60	Tunis	12
Clermont	21	Glasgow	44	Majorca	14	Nottingham	26	St. Domingo	108	Turin	32
Coblenz	22	Gondar	37	Malabar	82	Oporto	54	St. Etienne	53	Udine	68
Coimbra	173	Goree	21	Malaga	20	Oran	17	St. Gothard	73	Ulm	27
Colombo	73	Grahamstown	25	Malta	20	Orleans	25	St. John's	58	Upsal	19
Comorin, C.	28	Grenada,W.I.	105	Manchester	36	Oxford	27	St. Petersburg	17	Utah	24
Constantinople	41	Grenoble	37	Manilla	87	Padua	34	St. Helena	45	Utrecht	29
Copenhagen	22	Grimsel	93	Mannheim	22	Palermo	23	St. Louis	42	Valdivia	106
Copiapo	1	Guadaloupe	129	Mantua	31	Para	71	Salt Lake	18	Valence	37
Cordoba, S. America }	31	Guatemala	49	Maranham	280	Paris	23	San Francisco	23	Valparaiso	14
Corfu	54	Havana	77	Marseilles	21	Parana	36	San Luis, Argentine Republic }	22	Venice	34
Cork	40	Hayti	56	Matamoros	36	Parma	32	Santiago, Chile	11	Vera Cruz	183
Coromandel	54	Himalaya, S.	622	Mauritius	36	Pau	45	Savannah	55	Verona	38
Corrientes	58	Hobart	22	Meerut	32	Pekin	27	Seville	22	Vevay	47
Cracow	13	Hong-Kong	101	Melbourne	27	Penzance	46	Sienna	38	Vicenza	44
Crimea	15	Hyderabad	8	Memphis,U.S.	42	Pernambuco	109	Sierra Leone	125	Vienna	20
Curaçoa	27	Iceland	30	Mendoza	6	Perpignan	21	Simla	71	Viviers	36
Cyprus	13	Isle of Man	37	Messina	26	Perth, W.A.	29	Simplon	41	Vosges	27
Darjeeling	104	Isle of Wight	31	Metz	28	Peshawur	13	Singapore	150	Washington	41
Delhi	24	Jamaica	66	Middleburg	26	Philadelphia	41	Sitka	91	Wellington	52
Demerara	126	Jerusalem	16	Milan	38	Pisa	50	Smyrna	24	Wilmington	59
Detroit	30	Kandy	85	Milwaukee	30	Pittsburg	37	Splugen	73	Windermere	140
Dijon	29	Key West	36	Mogador	50	Poitiers	23	Stockholm	20	Würzburg	14
Dover	48	Königsberg	27	Montevideo	44	Poona	19	Strasburg	27	Yakutsk	11
Dovrefeld Mt.	90	Lausanne	39	Montpelier	34	Port Said	2	Stuttgart	25	Yokohama	71
Dublin	30	Leeds	27	Mooltan	7	Port Elizabeth	24	Sumatra	189	York	24
Dumfries	37	Lille	27	Nagpoor	45	Potsdam	20	Sydney	43	Zürich	34
Dunedin	29	Lima	9	Namur	21	Prague	15			Zambesi	61
Durban	42	Limerick	35	Nancy	28	Provence	26			Zanzibar	58
		Limoges	35	Nantes	52						

The rainfall according to months in various parts of the world is :—

									Inches				
	January	February	March	April	May	June	July	August	September	October	November	December	Year
Ben Nevis	17.8	13.3	5.9	7.5	4.0	7.5	11.5	8.7	11.0	12.2	9.0	17.6	126.0
Bourbon	8.8	11.2	5.3	4.8	3.0	0.6	0.3	1.7	0.8	1.7	3.2	5.3	46.7
Cannes	3.2	2.5	3.7	2.7	2.2	1.4	0.6	0.9	3.1	6.3	4.5	4.9	36.0
Canton	0.8	0.6	...	3.6	8.2	8.5	2.7	7.7	6.1	0.6	...	0.3	39.1
Chambery	3.0	2.4	3.6	2.8	3.3	3.2	2.9	4.3	4.0	4.2	3.9	3.4	41.0
Colombo	3.0	2.1	2.1	7.5	13.5	6.9	3.4	2.8	5.3	11.4	10.8	4.5	73.4
Copenhagen	1.4	1.2	1.3	1.2	1.5	2.2	2.6	2.4	2.7	2.2	2.0	1.7	22.4
Fernando Po	1.0	3.7	9.2	8.4	8.5	11.1	6.5	11.3	16.8	15.6	8.9	1.1	102.1
Hayti (P. Prince)	0.9	2.9	3.1	5.4	11.9	3.7	3.7	6.2	7.3	5.8	3.6	1.4	55.9
Hong-Kong	0.6	1.6	2.3	6.4	7.6	21.1	16.4	13.9	15.3	6.4	7.0	3.0	101.6
Macao	0.6	1.7	2.5	5.6	11.8	11.1	7.7	9.9	11.1	5.5	2.4	0.9	70.8
Magellan Straits	1.4	1.0	2.0	3.3	1.0	1.1	0.4	1.5	0.6	0.9	1.1	1.0	15.3
Natal	4.2	5.2	4.1	2.3	0.5	0.1	0.2	0.7	1.7	2.6	5.7	4.5	31.8
Paris	1.4	1.4	1.3	1.8	1.4	2.5	2.0	2.2	2.1	2.3	2.2	1.8	22.4
Pekin	3.4	5.6	4.4	0.4	1.1	2.4	4.2	5.8	7.7	1.3	0.3	4.8	41.4
Perpignan	1.8	1.6	1.6	1.8	2.6	1.4	0.8	1.3	2.1	2.0	2.2	1.9	21.1
Sebastopol	2.9	2.6	2.2	3.8	0.9	6.2	4.7	1.7	1.3	1.6	3.2	3.7	34.8
Senegal (St. Louis)	0.3	0.8	...	...	0.5	0.4	3.0	6.5	5.1	0.4	...	...	17.0
Sierra Leone	0.5	0.3	0.6	3.2	8.2	14.7	25.8	28.6	30.0	14.7	5.1	1.4	133.1

RAINFALL OF UNITED KINGDOM

The average annual rainfall of Great Britain since 1815 has been as follows :—

Years				Inches	Years				Inches
1815–24	.	.	.	29.0	1845–54	.	.	.	28.6
1825–34	.	.	.	28.5	1855–64	.	.	.	26.6
1835–44	.	.	.	28.3	1865–82	.	.	.	29.3

The average rainfall is equal to 630,000 gallons (almost 3000 tons) per acre per annum, of which 2000 tons are required to feed the rivers and crops, and 1000 tons per acre are lost, being allowed to run off. The above does not include Ireland, where the rainfall averages 35 inches. Scotland appears to have less rainfall than England or Ireland.

The rainfall of the United Kingdom is shown in months thus :—

	England (1815–48)	U. Kingdom (1850–59)	Scotland	Ireland
	Inches	Inches	Inches	Inches
January . .	1.7	3.4	3.3	4.0
February . .	1.6	2.2	2.2	2.8
March . .	1.6	2.0	2.1	2.3
April . .	1.7	2.1	1.9	2.8
May . .	2.0	1.8	1.6	2.1
June . .	1.8	2.5	2.2	2.7
July . .	2.4	2.9	2.6	3.0
August . .	2.4	3.0	2.6	3.2
September . .	2.4	2.7	2.5	2.5
October . .	2.7	3.5	3.1	3.0
November . .	2.5	3.0	2.9	3.0
December . .	2.9	3.0	3.0	3.6
Year . . .	24.8	32.1	30.0	35.0

The quantity of ammonia in rain differs greatly with locality, viz. :—

Valentia, Kerry .	1.00	Germany . . .	10.61
Scotland, West Coast .	2.69	London . . .	19.17
,, mountains .	2.96	Scotland . .	21.22
,, East Coast .	5.51	Liverpool . .	29.89
England, East Coast .	5.94	Manchester . .	36.54
,, West Coast .	10.55	Glasgow . .	50.58

The average rainfall in London for seventy years has been :—

Summer, half-year	12.87
Winter ,, ...	12.03
Annual rainfall . . .	24.90

Taking the above figures as par, the variations of seventy years have been as follows :—

	Summer	Winter	Year		Summer	Winter	Year
1813–22	97	110	103	1853–62	105	85	95
1823–32	108	93	101	1863–72	93	107	100
1833–42	92	99	95	1873–82	110	106	108
1843–52	95	101	98				

RAINFALL OF FRANCE.

Raulins states the rainfall according to seasons in France and Geneva thus :—

	Spring	Summer	Autumn	Winter	Year
Agen . . .	7.6	6.4	7.4	6.2	27.6
Arles . . .	5.4	3.2	8.0	5.5	22.1
Auxerre . .	5.8	8.7	6.2	5.0	25.7
B. Bigorre . .	18.6	10.2	13.2	11.7	53.7
Bayonne , . .	12.5	10.4	16.1	12.7	51.7
Beauvais . .	5.1	6.1	6.3	4.8	22.3
Besançon . .	5.8	10.1	6.8	2.6	25.3
Blois . . .	7.1	5.9	7.1	5.3	25.4
Bordeaux . .	6.8	7.0	9.1	8.8	31.7
Calais . . .	6.5	5.0	9.3	8.6	29.4
Cambray . .	3.2	6.7	4.7	1.9	16.5
Carcassonne . .	9.2	5.2	7.6	7.4	29.4
Chalons, Saone .	5.1	7.4	7.8	4.6	24.9
Clermont . .	5.2	6.5	5.9	3.6	21.2
Dijon . . .	6.3	7.1	8.7	5.8	27.9
Geneva . . .	7.4	9.2	10.5	6.5	33.6
Grenoble . .	9.2	9.7	11.8	8.2	38.9
Lille . . .	5.6	7.5	7.6	6.0	26.7
Limoges . .	8.2	8.7	10.0	8.4	35.3
Lyons . . .	6.9	7.8	8.5	4.1	27.3
Marseilles . .	4.2	2.0	8.2	4.7	19.1
Metz . . .	6.1	8.2	7.0	5.6	26.9
Montpellier . .	8.0	4.3	13.2	9.3	34.8
Nancy . . .	6.7	8.2	7.4	6.2	28.5
Nice . . .	7.2	3.2	12.4	8.8	31.6

	Spring	Summer	Autumn	Winter	Year
Nismes . . .	6.2	4.0	9.1	5.5	24.8
Orleans . . .	6.4	6.9	7.0	5.1	25.4
Pau	16.2	9.0	12.0	10.4	47.6
Poitiers . . .	5.3	5.0	7.0	5.8	23.1
Rheims . . .	4.0	5.9	5.4	3.5	18.8
Rochelle . . .	4.6	3.7	8.5	6.9	23.7
Rouen . . .	6.0	7.5	7.7	6.2	27.4
Strasburg . . .	7.0	9.5	6.7	4.3	27.5
Toulon . . .	6.4	1.8	12.2	8.5	28.9
Toulouse . . .	6.9	5.9	5.9	4.7	23.4
Tours	5.2	5.6	7.0	4.6	22.4
Valence . . .	8.7	7.4	14.9	6.0	37.0
Average . . .	7.0	6.6	8.7	6.4	28.7

The annual rainfall of Paris has been as follows :—

Period	Ins.	Period	Ins.	Period	Ins.
1689–1747	.18	1789–1818	.18	1849–1872	.21
1748–1788	.21	1819–1848	.21	1873–1882	.23

The total rainfall of France is as follows :—

	Million Tons per Annum	Tons per Second
Outflow by Rhone . . .	54,000	1,718
,, Gironde. . .	37,000	1,178
,, Loire . . .	31,000	985
,, Seine . . .	22,000	694
Other rivers	36,000	1,146
Absorbed for crops, &c. .	195,000	6,180
Total . .	375,000	11,901

France loses nearly half her rainfall, England more than one-third.

Snow.—The average number of days on which snow falls in a year is as follows :—

Aberdeen . .	42	Macon . . .	21	St. Petersburg	62
Brussels . .	24	Madrid . . .	3	Saragossa. .	5
Charleston .	2	Milan . . .	11	Sebastopol .	12
Copenhagen .	23	Moscow . .	71	Sienna . . .	6
Dublin . . .	15	Newfoundland	78	Strasburg . .	16
Florence . .	2	Odessa. . .	19	Trieste. . .	6
Geneva . .	20	Ostend. . .	15	Turin . . .	9
Greenland .	80	Oxford. . .	18	Upsal . . .	61
Grenoble . .	18	Paris . . .	13	Vancouver .	7
Halifax . .	64	Quebec . .	66	Vienna. . .	33
Hamburg. .	18	Rome . . .	2	Warsaw . .	45
Iceland . .	46	St. Gothard .	116	Winnipeg. .	54
Lisbon . . .	1	St. Louis . .	11	Yakutsk . .	55

The most remarkable snowfalls in England have been in the following years :—

1141	1683	1784	1814
1606	1709	1799	1820
1674	1762	1812	1836

The earliest snow of the season was that of October 7th, 1829, in the present century. There was no snow from November 1862 till February 1864.

The line of perpetual snow varies with latitude, and is as follows in feet above sea-level :—

Lat.				Feet	Lat.				Feet
0 .	.	.	.	15,260	40 .	.	.	.	9,000
10 .	.	.	.	14,764	50 .	.	.	.	6,334
20 .	.	.	.	13,478	60 .	.	.	.	3,818
30 .	.	.	.	11,484	70 .	.	.	.	1,278

			Feet				Feet
Norway .	.	.	2,400	Himalayas, S. .	.	.	13,100
Iceland .	.	.	3,090	Abyssinia .	.	.	14,200
Straits of Magellan .		.	4,700	Ararat .	.	.	14,300
Siberia .	.	.	4,800	Mexico .	.	.	14,800
Alps .	.	.	8,940	Andes, E. .	.	.	15,800
Pyrenees .	.	.	9,000	Chilian do. .	.	.	15,900
Caucasus .	.	.	11,100	Himalayas, N..	.	.	16,700
S. Nevada .	.	.	11,200	Andes, W. .	.	.	18,600

Storms.—The most destructive in the United Kingdom have been :—

1703, November 27th.—Damage in London, £2,000,000. On the coast twelve war-ships sunk and 1800 men lost.

1775, October 29th.—Almost equal to the above. Houses blown down and ships sunk.

1839, January 6th.—Many houses blown down at Liverpool and Dublin, and 200 persons killed at Liverpool.

1859, October 25th.—Great loss of shipping, including the " Royal Charter " near Holyhead.

1879, December 28th.—Tay Bridge blown down ; loss of 90 lives. See *Wind-pressure.*

Submarine Temperature.—The decrease of temperature with depth varies according to latitude : thus 500 fathoms at the Equator make a difference of 39 degrees Fahr. from the surface, while abreast of Lisbon it would be only 23 degrees, and at the Farol Islands little over 10 degrees.

The following table shows the variations thus :—

	Degrees Fahrenheit	
	Equator	Off Lisbon
Surface	78	70
100 fathoms	56	64
500 ,,	39	47
1,000 ,,	37	38
1,500 ,,	36	37
2,700 ,,	35	35

The average depth of the Mediterranean is 800 fathoms, and the temperature at the bottom is found to average 54° Fahr. The Red Sea, with surface temperature of 90°, was found to have 70° Fahr. at the bottom—a depth of 400 fathoms—which is rather more than the difference quoted above at the Equator.

Subterranean Temperature.—Subterranean temperature seems the same in the southern as in the northern hemisphere, a well at Buenos Ayres showing (in winter) 97° Fahr. at a depth of 2000 ft.

The variations of a well in Yorkshire, 350 ft. deep, according to season, have been recorded thus :—

	At 100 Feet	At 350 Feet
April	45	42
June	65	46
December	41	43

The following table shows a variety of mines and borings, and the average increase of temperature per 1000 feet :—

	Depth, Feet	Increase, Fahr., per 1000 Feet
Flint	1,041	12.5
Kentish Town	1,100	18.0
Whitehaven	1,250	22.0
Grenelle	1,312	17.3
Schemnitz	1,368	13.3
Bootle	1,392	7.7
Monkwearmouth	1,584	14.3
Seraing	1,657	20.0
Przibrau	1,900	8.0
Lincoln	2,000	14.5
Rosebridge	2,443	18.4
Ashton Moss	2,790	13.0
Speremberg	3,500	19.4
Bohemian Mine	4,600	16.5
Mont Cenis	5,280	12.6
St. Gothard	5,578	12.2

The temperature at various depths in the Rosebridge, Speremberg, and the Bohemian mine above mentioned was as follows :—

Bohemian		Speremberg		Rosebridge	
Depth, Ft.	Fahr.	Depth, Ft.	Fahr.	Depth, Ft.	Fahr.
300	49	720	71	480	65
600	51	1,130	80	600	66
1,200	58	1,550	84	1,800	80
1,650	61	2,160	97	2,200	89
4,600	120	3,500	116	2,450	94

Sun Spots.—Wolf's table for sixty-six years showed as follows :—

Period	Maximum Year	Number of Spots	Minimum Year	Number of Spots
1811–20	1816	47	1811	2
1821–30	1829	67	1823	3
1831–40	1837	136	1833	9
1841–50	1848	125	1843	13
1851–60	1860	95	1856	5
1861–70	1870	132	1867	9
1871–77	1871	114	1877	7

Thunder.—The average number of days of thunder yearly in France is :—

Marseilles	11	Toulouse	16	Poitiers	20
Paris	14	Strasburg	17	Nancy	20
Rouen	15	Metz	18	Mulhouse	26

Thermometer.—The mean temperature of the various cities of the world in degrees Fahrenheit is :—

	January	February	March	April	May	June	July	August	September	October	November	December	Year	Range
Aberdeen	37	38	41	45	52	56	59	58	55	48	42	40	48	12
Adelaide	74	74	70	65	58	54	52	54	57	63	67	71	63	22
Agra	60	65	76	88	94	95	87	86	84	80	70	62	79	35
Ajaccio	50	52	54	58	62	70	76	78	72	64	56	51	62	28
Albany	24	25	35	47	59	68	72	70	61	49	39	28	48	48
Alexandria	56	58	61	66	72	76	78	81	78	75	69	61	69	25
Algiers	54	55	57	61	66	72	76	77	74	68	60	55	65	23
Amsterdam	33	37	41	48	55	62	65	63	61	51	42	37	50	32
Ancona	42	46	50	57	67	73	80	78	73	62	53	46	61	38
Archangel	6	9	21	31	40	55	61	57	47	35	23	12	33	55
Arica	72	71	70	68	66	65	64	63	63	66	69	72	67	9
Astrakan	20	21	31	49	64	73	78	74	64	51	37	26	49	58
Asuncion	80	83	82	74	68	60	70	74	78	83	82	81	76	23
Athens	47	48	52	59	68	76	81	80	74	66	57	50	63	34
Auckland	68	68	66	62	57	53	52	52	55	58	61	66	60	16
Ava	65	73	75	93	84	86	82	82	82	81	74	68	77	28

	January	February	March	April	May	June	July	August	September	October	November	December	Year	Range
Azores	57	56	57	59	62	65	71	71	69	65	61	58	62	16
Bagdad	52	53	64	72	87	91	95	94	86	76	62	53	74	43
Barcelona	48	51	53	58	62	70	77	78	72	65	55	48	61	30
Batavia	78	78	79	80	80	80	79	79	80	79	79	78	79	2
Benares	61	66	77	88	91	90	84	84	83	79	68	60	78	31
Ben Nevis	25	27	24	26	32	45	41	40	37	28	26	23	31	22
Bergen	34	36	37	44	52	55	61	59	54	48	41	37	47	27
Berlin	31	34	38	47	56	64	66	65	58	50	39	33	48	35
Bermuda	64	64	63	67	72	77	81	83	80	75	71	66	72	20
Berne	26	32	38	46	54	59	62	61	55	47	37	31	46	36
Biskra	50	54	57	66	76	84	90	88	80	68	58	51	69	40
Bogota	60	61	59	59	59	59	57	62	61	59	59	59	60	5
Bombay	74	75	79	83	85	83	81	80	80	81	79	76	80	11
Bordeaux	41	45	51	56	61	67	73	73	67	58	48	43	57	32
Boston	28	28	36	46	57	66	72	70	62	52	41	33	49	44
Brest	44	45	46	52	56	60	64	64	61	54	47	43	53	21
Brisbane	79	77	76	71	66	60	60	63	68	72	77	78	70	19
Brussels	36	39	42	50	56	61	66	63	59	50	42	37	50	30
Buda-Pesth	28	33	39	50	64	68	71	71	62	51	40	32	51	43
Buenos Ayres	76	74	70	62	57	52	50	53	57	62	68	73	63	26
Burlington, U.S.	21	21	31	42	55	65	70	68	59	48	36	25	45	49
Bushire	57	57	63	72	81	84	88	89	85	78	69	61	74	32
Cadiz	52	55	55	60	64	70	70	73	70	67	59	54	63	21
Cagliari	48	52	51	58	66	71	76	78	71	67	59	53	62	30
Cairo	56	56	65	71	80	83	85	84	79	74	65	59	71	29
Calcutta	65	71	79	84	85	85	83	82	82	80	73	65	78	20
Canton	53	58	63	70	77	81	83	82	80	73	65	57	71	30
Capetown	70	70	67	63	58	56	55	56	58	61	64	68	62	15
Carlsruhe	33	37	42	51	60	64	67	66	60	51	42	36	51	34
Cashmere	17	20	31	41	47	56	62	60	52	40	30	23	40	39
Cawnpore	64	70	72	89	97	91	87	88	85	80	75	68	80	33
Cayenne	79	79	79	80	80	80	81	81	82	82	81	79	80	3
Charleston	51	53	58	65	73	81	83	82	76	68	58	51	66	32
Christiania	24	26	30	37	48	58	62	61	52	41	34	24	41	38
Cincinnati	33	34	44	54	63	72	77	74	66	55	44	34	54	44
Colombo	80	81	82	83	83	82	81	81	81	81	80	80	81	3
Constantinople	40	41	46	51	59	67	72	73	67	60	52	44	56	33
Copenhagen	30	26	32	41	50	60	66	62	59	49	38	34	46	40
Copiapo	70	71	69	64	60	57	57	56	61	65	67	71	64	15
Cordoba, Arg. Rep.	73	70	65	58	53	50	47	54	60	62	68	73	61	26
Corfu	50	51	53	60	67	74	79	79	73	68	59	53	64	29
Cyprus	53	50	57	63	72	81	84	85	82	73	61	52	68	35
Darjeeling	39	41	48	54	56	60	61	61	59	55	48	42	52	22
Delhi	58	62	74	85	90	94	87	87	85	79	68	60	77	36
Dieppe	39	43	42	52	58	63	66	64	61	52	46	41	52	27
Drontheim	19	26	21	34	51	59	65	59	54	39	27	25	40	46
Dublin	39	41	43	48	54	60	61	61	56	51	44	42	50	22
Dunedin	58	58	55	52	47	44	43	43	47	51	53	56	51	15
Durban	74	76	72	66	60	56	55	56	60	64	69	71	65	21
Edinburgh	37	38	41	44	50	56	58	57	54	48	41	40	47	21
Erfurt	30	34	37	48	57	64	67	65	61	47	39	30	48	37
Erzeroum	28	36	48	65	68	83	89	90	78	65	44	30	60	62
Etna Mountain	16	15	22	23	34	38	46	47	39	30	23	18	29	31
Feejee Islands	81	81	81	80	79	78	77	77	78	79	80	82	79	5
Fernando Po	81	82	81	79	76	75	76	75	74	76	78	80	78	8
Florence	41	45	51	60	65	71	77	76	69	60	50	46	59	36
Frankfort	31	36	42	49	58	64	66	65	59	50	41	35	50	35
Friburg	24	30	39	46	55	59	62	61	54	45	36	30	45	38
Galveston	53	58	64	69	78	83	84	83	79	72	62	56	70	31
Geneva	31	33	40	47	54	63	65	64	58	50	42	34	48	34
Gondar	67	70	71	72	72	68	62	56	62	62	64	65	65	16
Grahamstown	74	73	72	67	65	63	63	66	67	68	69	70	68	11
Grätz	25	31	37	47	58	66	68	66	60	48	42	28	48	43
Grenoble	31	39	47	51	57	64	68	67	60	51	41	32	51	37
Guatemala	61	62	67	68	69	68	66	66	66	65	65	62	65	8
Hague	35	40	44	51	57	62	66	67	61	54	43	40	52	32
Hamburg	31	34	37	45	54	59	64	64	58	50	40	33	47	33
Havana	72	72	74	78	80	82	82	82	81	79	75	73	78	10
Havre	41	44	43	53	59	64	68	66	62	54	46	43	54	27
Helsingfors	18	18	23	34	44	56	61	60	52	42	34	23	39	43
Hobart	63	62	60	55	51	47	46	49	51	54	58	61	55	17
Hong-Kong	61	62	63	71	79	82	83	82	81	73	71	66	73	22
Honolulu	72	72	72	74	76	78	80	79	78	76	74	74	75	8
Hydrabad	63	66	78	86	91	91	88	85	86	83	71	63	79	28
Iceland	30	28	30	37	44	52	55	51	47	38	30	28	39	27

	January	February	March	April	May	June	July	August	September	October	November	December	Year	Range
Innspruck . . .	28	34	37	48	58	65	65	62	58	53	37	29	48	37
Isle of Man . .	42	41	43	47	52	57	60	59	56	51	46	43	50	19
Jamaica . . .	76	76	76	78	78	80	82	81	82	79	77	77	78	6
Jersey . . .	41	44	45	51	57	61	63	63	60	55	48	45	53	22
Jerusalem . .	47	49	58	60	68	73	75	76	72	72	61	50	63	29
Kandy . . .	74	76	79	79	79	76	76	76	76	76	75	75	76	5
Kazan . . .	6	9	20	38	53	62	67	62	51	42	24	8	37	61
Königsberg . .	25	27	31	41	52	57	62	61	54	44	36	27	44	37
Lausanne . .	33	36	40	48	57	64	63	66	60	50	40	32	49	34
Lille . . .	37	37	41	48	55	61	64	64	60	52	42	38	50	27
Lisbon . . .	51	52	54	58	62	67	70	71	68	62	56	50	60	21
London . . .	37	40	42	47	53	58	62	62	57	51	44	40	50	25
Lucknow . .	61	66	77	87	92	92	86	86	85	79	69	61	78	31
Lyons . . .	36	40	44	53	61	66	70	68	63	53	42	37	53	34
Macao . . .	62	55	64	71	78	82	82	83	81	76	74	74	75	28
Maçon . . .	31	40	47	49	56	63	65	68	60	48	42	34	50	37
Madeira . .	61	61	61	62	65	69	70	73	72	69	65	62	66	12
Madras . . .	76	77	81	85	87	88	86	85	84	81	78	76	82	12
Madrid . . .	41	42	47	55	61	69	76	75	66	56	47	41	56	35
Magellan Straits .	55	52	52	45	39	36	35	39	43	47	49	52	45	20
Majorca . .	52	53	56	60	65	73	79	81	75	68	59	52	64	29
Malaga . . .	55	57	59	64	68	76	81	81	76	69	61	55	67	26
Malta . . .	56	55	57	61	67	73	78	79	76	71	63	58	66	24
Manilla . . .	75	77	78	81	82	82	80	80	80	79	78	76	79	7
Mannheim . .	34	36	41	51	60	66	68	67	60	50	39	34	51	34
Marseilles . .	43	47	51	56	61	67	72	72	65	59	50	44	57	29
Mauritius . .	79	79	78	77	73	70	69	69	70	73	75	78	74	10
Melbourne . .	67	66	64	59	53	50	48	50	53	57	61	64	58	19
Messina . .	54	54	57	61	67	74	78	79	76	69	63	56	66	25
Mexico . . .	55	57	61	68	68	66	64	62	62	60	58	54	60	14
Milan . . .	33	38	46	55	64	71	75	74	66	57	47	37	55	42
Mogador . .	62	63	65	68	69	72	72	72	71	70	66	62	68	10
Montevideo . .	73	72	69	64	58	53	52	52	56	61	65	70	62	21
Montgomery, U.S. .	49	53	58	65	76	81	83	80	75	66	55	50	66	34
Montpelier . .	39	42	49	57	65	72	76	73	67	57	48	40	57	37
Montreal . .	15	17	29	43	58	68	73	71	61	46	33	19	44	58
Mooltan . .	54	58	70	80	89	94	92	89	87	77	65	56	76	40
Moscow . . .	11	15	23	37	53	62	67	65	54	40	27	17	41	56
Munich . . .	29	31	38	48	58	64	65	65	59	48	37	29	48	36
Muscat . . .	68	70	73	85	92	93	93	87	87	80	76	71	81	25
Nagasaki . .	41	43	49	58	65	71	79	81	76	65	55	45	61	40
Nagpoor . .	69	74	82	89	93	86	79	79	79	77	71	67	79	26
Naples . . .	47	48	51	57	64	71	76	76	71	63	54	49	61	29
Nashville . .	39	44	50	56	74	78	82	79	69	62	48	41	60	43
New Caledonia .	79	79	79	77	75	73	68	65	72	75	78	79	75	14
New Orleans . .	55	55	61	68	72	79	81	80	77	69	58	57	69	26
Nice . . .	45	47	51	56	60	57	72	72	64	59	50	44	58	28
Norfolk, U.S. . .	40	43	48	57	69	76	80	77	71	62	50	42	59	40
North Cape . .	22	23	25	30	34	40	46	44	37	32	26	26	32	24
Odessa . . .	25	28	33	46	57	66	73	70	59	52	40	29	48	48
Oporto . . .	50	52	53	60	63	69	70	70	67	61	55	51	60	20
Oran . . .	50	52	55	59	65	71	76	76	71	65	58	52	62	26
Orenburg . .	2	10	19	39	57	66	71	67	55	37	24	8	38	69
Palermo . .	51	51	54	58	65	71	76	76	73	67	59	55	63	25
Para . . .	80	80	80	79	80	81	81	81	81	81	82	82	81	3
Paris . . .	36	40	45	50	55	63	66	65	60	52	44	37	51	30
Pau . . .	44	47	52	59	62	69	73	74	69	61	50	45	59	30
Pekin . .	24	29	41	57	68	76	79	76	68	55	39	28	53	55
Penzance . .	42	44	45	48	54	59	62	61	57	53	47	45	52	20
Perth, W. Australia .	76	76	72	66	60	56	55	56	60	64	69	71	65	21
Peshawur . .	50	52	63	71	82	90	89	87	81	71	58	51	70	40
Port Darwin . .	83	82	84	84	80	77	76	79	82	84	86	89	82	13
Prague . . .	28	32	38	50	60	66	69	69	62	50	41	30	50	41
Pultowa . .	15	18	28	42	54	63	68	66	55	43	33	22	42	53
Quetta . . .	41	41	51	59	68	74	77	75	67	56	45	41	58	36
Quito . . .	58	60	60	61	61	59	59	61	61	60	60	61	60	3
Ratisbon . .	28	32	39	50	58	63	65	65	59	48	37	30	48	37
Rio Janeiro . .	80	80	78	75	71	69	67	70	71	73	74	77	74	13
Rome . . .	45	48	51	57	65	72	77	76	70	61	52	46	60	32
St. Bernard . .	15	18	21	26	35	42	43	43	38	31	23	19	30	28
St. Gall . .	29	34	40	49	56	61	65	68	58	49	39	34	48	39
St. Helena . .	64	66	67	66	63	60	58	57	57	58	60	62	62	10
St. Louis . .	33	35	44	58	66	74	78	77	68	55	41	34	55	45
St. Petersburg . .	15	18	26	36	48	58	62	61	51	40	30	22	39	47
Salta	69	70	65	62	55	59	55	58	64	65	68	70	63	15

	January	February	March	April	May	June	July	August	September	October	November	December	Year	Range
Salt Lake	29	32	40	48	57	69	77	75	64	52	40	30	52	48
Salzburg	29	31	35	48	53	61	62	61	57	49	41	33	46	33
San Francisco	51	53	54	55	57	59	58	58	60	60	57	52	56	9
Santiago, Chili	68	66	62	55	49	46	45	47	52	56	62	67	56	23
Saratov	14	16	25	41	57	66	72	68	58	43	32	21	42	58
Savannah	52	55	60	66	74	81	83	82	75	68	69	53	67	31
Sebastopol	35	36	41	50	59	68	72	72	64	55	47	26	53	46
Senegal	68	68	69	69	71	77	81	82	82	82	77	79	75	14
Seringapatam	71	77	80	84	85	79	77	73	77	77	74	72	77	14
Seville	52	56	60	64	70	77	86	82	80	69	60	52	67	34
Shanghai	38	40	47	55	65	73	83	81	73	63	51	42	59	45
Sierra Leone	82	82	84	84	82	80	79	79	78	80	82	81	80	6
Simla	40	41	49	59	64	67	64	63	61	56	49	45	55	27
Smyrna	51	51	57	62	71	78	83	82	77	69	60	54	60	32
Stockholm	24	25	28	38	48	59	64	62	53	43	34	28	42	40
Strasburg	32	37	42	48	59	61	65	64	58	50	41	35	50	33
Sumatra	80	80	80	81	81	81	80	80	80	79	79	79	80	2
Surinam	77	77	77	78	78	77	78	78	78	79	78	78	78	2
Sydney	71	71	69	65	58	55	52	54	59	63	66	69	63	19
Teneriffe	56	55	56	59	62	66	69	76	74	69	62	58	64	21
Tiflis	33	35	44	53	64	70	76	76	67	57	46	37	55	43
Tobolsk	12	18	23	32	41	49	52	48	42	33	23	15	32	40
Toulon	46	50	49	55	62	69	73	71	68	59	51	46	58	27
Trieste	38	39	44	53	62	69	72	72	65	57	48	50	55	34
Tucuman	74	74	71	68	58	53	54	61	66	67	74	77	66	24
Tunis	52	55	59	64	72	77	85	86	80	71	61	57	68	34
Turin	31	36	44	53	62	68	73	73	64	54	43	33	53	42
Upsal	27	28	30	36	41	47	49	48	43	38	32	28	37	22
Valdivia	62	61	57	53	50	46	45	46	49	52	56	59	52	17
Valparaiso	63	63	61	58	56	54	53	53	54	57	59	63	58	10
Venice	35	39	46	55	63	70	75	74	66	57	45	40	55	40
Vera Cruz	71	72	74	78	82	82	82	82	82	79	75	72	77	11
Vevay	33	36	43	50	58	64	68	64	59	53	40	38	51	35
Vienna	29	33	41	51	60	67	70	70	61	51	40	34	51	41
Vologda	21	20	25	31	42	48	51	49	42	34	27	23	35	31
Warsaw	22	26	32	44	55	62	65	64	60	45	35	26	44	43
Washington	34	36	45	55	66	74	78	76	68	56	44	37	56	44
Wilmington	47	50	55	61	70	76	80	78	73	65	55	48	63	33
Würzburg	33	34	41	52	62	68	69	67	62	51	38	33	51	36
Yakutsk	10	4	9	23	35	45	49	46	36	22	4	7	21	59
Yarkand	29	41	55	77	83	89	95	88	79	67	44	30	65	66
Yokohama	39	42	46	55	65	72	79	79	70	60	50	48	58	40
Zanzibar	83	83	83	82	80	79	77	77	78	79	81	82	80	6
Zürich	27	33	40	46	60	61	65	65	58	50	39	30	48	38

The mean temperature of the United States is as follows :—

State	Spring	Summer	Autumn	Winter	Year	Highest Month	Lowest Month
Alabama	67	79	66	52	66	82	42
Arkansas	61	78	60	40	60	84	25
California	61	72	64	52	62	76	46
Carolina, N.	64	80	67	51	66	83	40
Carolina, S.	66	81	68	52	66	84	40
Connecticut	46	69	53	30	50	76	20
Delaware	52	76	57	34	54	80	22
Florida	71	81	73	61	72	85	52
Georgia	64	80	63	48	64	85	39
Illinois	52	75	54	26	52	78	24
Indiana	59	77	55	38	57	79	34
Iowa	47	69	46	21	46	74	8
Kansas	54	81	54	29	53	83	10
Kentucky	54	75	56	34	55	80	18
Louisiana	69	82	70	55	68	87	40
Maine	41	64	46	20	43	68	14
Maryland	53	75	57	34	55	80	24
Massachusetts	45	68	50	26	47	74	20
Michigan	40	64	46	22	43	73	10
Minnesota	46	71	46	16	44	82	2
Mississippi	68	81	67	52	67	81	52
Missouri	55	75	55	33	55	83	21
New Hampshire	43	65	48	24	45	67	23
New Jersey	49	71	52	32	51	73	31
New Mexico	49	70	50	30	50	75	24
New York	45	69	50	27	48	74	16
Ohio	50	72	53	31	51	74	28
Oregon	53	71	53	36	53	76	22
Pennsylvania	50	73	54	32	52	80	21
Rhode Island	46	69	53	30	50	73	24
Tennessee	58	74	59	41	58	77	36
Texas	75	82	73	63	74	86	52
Utah	52	76	53	32	53	...	18
Vermont	40	64	44	19	42	67	18
Virginia	56	76	59	38	58	80	31
Washington Terr.	49	63	51	42	50	67	35
Wisconsin	46	70	47	20	46	80	7

The States of highest and lowest mean annual temperature are :—

Highest	Fahr.	Lowest	Fahr.
Texas	74	Vermont	42
Florida	72	Maine	43
Louisiana	68	Michigan	43

The following table shows the greatest degrees of cold on record :—

Place	Year	Latitude	Degrees Fahr.	Maximum Recorded
Turin . . .	1864	45.50	0	In Italy
London . . .	1796	51.31	16	In England
Paris . . .	1879	48.52	13	At Paris
Frankfort . .	1789	50.10	23	In Germany
Pontarlier .	1846	...	25	In France
Stockholm .	...	59.20	27	By Nicander
Prague . . .	...	50.50	28	By Strandt
St. Petersburg	1733	59.56	34	...
Basle . . .	1789	...	36	In Switzerland
Sweden . .	1781	...	40	In Sweden
Moscow . .	1809	55.45	48	In Russia
Fort Enterprise	...	64.30	50	By Franklin *
Fort Elizabeth	...	70.00	51	By Ross
Fort Reliance	1835	62.46	57	By Back
Yakutsk . .	1829	...	73	In the World

Besides the foregoing we find 27° below zero at Washington, 37° at Montreal, and 51° by Captain Parry in his Arctic voyage.

Among the highest readings recorded are :—

	Degrees Fahrenheit in the Shade
London, July 15, 1881	95.5
Naples, July 25, 1881	96.2
Paris, August 26, 1765	104.0
Orange, July 1830	104.0
Rio Janeiro, December 1880 . . .	103.0
Adelaide, South Australia, January 1881 .	114.0
Mourzuk, India	133.0

The mean temperature of Great Britain, as registered for each month at Greenwich during 107 years, seems to have risen very notably since 1841, viz. :—

Months	Greenwich			Scotland, 1855–64
	1771–1841	1842–79	Rise	
January . . .	35.5	38.7	3.2	37.2
February . . .	38.3	39.4	1.1	37.4
March	40.8	41.6	0.8	39.8
April	45.5	47.2	1.7	44.1
May	52.4	52.7	0.3	49.5
June	57.8	59.0	1.2	55.6
July	61.3	62.2	0.9	57.6
August	60.6	61.5	0.9	57.3
September . .	56.2	57.1	0.9	52.8
October . . .	49.3	50.2	0.9	47.2
November . .	41.6	43.5	1.9	40.2
December . . .	38.6	40.0	1.4	38.6
Annual mean .	48.1	49.4	1.3	46.7

This rise of temperature in England has been coincident with a diminution of frost in Canada and Labrador. The mean temperature of France is stated as follows :—

Authority	Spring	Summer	Autumn	Winter	Year
Cotte . .	52	68	54	39	53
Fuster . .	51	67	53	38	52

The mean temperature of Paris has risen since the last century, viz. :—

Quarter Ending	1734–40	1806–70
March 31	40	40
June 30	56	57
September 30 . .	65	64
December 31 . .	43	45
Yearly average .	51	51½

* Cold appears to diminish in Canada with the increase of population, the average number of days in each year that Hudson's Bay is closed by frost showing thus :—

1828–37 . . 184 days | 1871–80 . . . 179 days

The greatest variations observed between days in the same month in 1866 were :—

	Paris	Lille	Bordeaux	Toulouse	Lyons	Perpignan	Marseilles	Nice
January	12	10	11	13	7	10	3	2
February . . .	12	12	7	12	11	12	4	16
March	12	9	5	17	12	15	4	4
April	16	18	16	21	14	13	4	6
May	14	11	16	19	14	15	15	19
June	15	14	18	18	17	15	14	17
July	14	13	17	18	17	13	29	9
August . . .	14	13	14	14	16	15	13	23
September . .	12	11	8	9	13	12	10	18
October . . .	10	13	14	14	10	11	13	17
November . .	11	11	15	16	11	16	12	9
December . .	16	11	6	7	8	14	10	7
Maximum . .	16	18	18	21	17	16	29	23

Thermometer

Centigrade	Reaumur	Fahrenheit	Centigrade	Reaumur	Fahrenheit
100	80	212	40	32.0	104.0
98	78.4	208.4	38	30.4	100.4
96	76.8	204.8	36	28.8	96.8
94	75.2	201.2	34	27.2	93.2
92	73.6	197.6	32	25.6	89.6
90	72.0	194.0	30	24.0	86.0
88	70.4	190.4	28	22.4	82.4
86	68.8	186.8	26	20.8	78.8
84	67.2	183.2	24	19.2	75.2
82	65.6	179.6	22	17.6	71.6
80	64.0	176.0	20	16.0	68.0
78	62.4	172.4	18	14.4	64.4
76	60.8	168.8	16	12.8	60.8
74	59.2	165.2	14	11.2	57.2
72	57.6	161.6	12	9.6	53.6
70	56.0	158.0	10	8.0	50.0
68	54.4	154.4	8	6.4	46.4
66	52.8	150.8	6	4.8	42.8
64	51.2	147.2	4	3.2	39.2
62	49.6	143.6	2	1.6	35.6
60	48.0	140.0	0	0.0	32.0
58	46.4	136.4	2	1.6	28.4
56	44.8	132.8	4	3.2	24.8
54	43.2	129.2	6	4.8	21.2
52	41.6	125.6	8	6.4	17.6
50	40.0	122.0	10	8.0	14.0
48	38.4	118.4	12	9.6	10.4
46	36.8	114.8	14	11.2	6.8
44	35.2	111.2	16	12.8	3.2
42	33.6	107.6	18	14.4	0.0

Range in Degrees Fahrenheit

		Degrees			Degrees
Ice melts . .		32	Lead melts .		594
Temperature of globe		50	Heat of common fire		1,140
Blood-heat .		98	Brass melts .		2,233
Alcohol boils .		174	Iron melts .		3,479
Water boils .		212			

Wind.—Velocity and pressure are shown as follows :—

Feet per Second	Miles per Hour	Pressure, Lbs. per Sq. Foot	Feet per Second	Miles per Hour	Pressure, Lbs. per Sq. Foot
10	7	4 oz.	80	54	16 lbs.
20	14	1 lb	100	68	25 ,,
40	27	4 lbs.	120	82	36 ,,
60	41	9 ,,	150	102	56 ,,

According to a register kept in London for 18 years, down to 1830, the prevalent winds were westerly, viz. :—

	Days			
	N. to E.	E. to S.	S. to W.	W. to N.
January . . .	6.0	5.6	7.1	10.0
February . . .	4.2	5.0	7.8	9.5
March . . .	5.8	4.9	8.3	10.5
April . . .	6.5	6.5	6.4	9.2
May	7.9	6.8	6.8	7.9
June	7.2	4.3	6.7	10.5
July	4.4	3.6	8.8	12.6
August . . .	5.2	3.5	8.6	13.0
September . .	6.3	5.5	8.8	8.3
October . . .	5.5	6.6	8.4	9.5
November . .	4.5	4.4	9.3	10.7
December . .	5.4	5.5	9.5	9.3
Total . .	68.9	62.2	106.5	121.0

At Plymouth in the years 1841–42, the mean velocity of wind in the several months, that is, feet per second, was as follows :—

Feet per Second

January .	12.76	May . . .	11.60	September .	15.42
February .	13.97	June . . .	10.90	October . .	15.29
March . .	14.63	July . . .	9.00	November .	14.96
April . . .	13.00	August . .	12.87	December .	12.54
1st Quarter .		.	13.80	3rd Quarter .	12.40
2nd ,, .		.	11.80	4th ,, . .	14.30

The mean amount of wind at Plymouth was :—

Wind	Spring	Summer	Autumn	Winter	Total
N.E . . .	143	2	...	133	278
E.N.E . .	134	13	102	134	383
E. . . .	321	124	130	25	600
S.E. . .	...	...	...	6	6
S.S.E. . .	19	...	3	7	29
S. . . .	657	86	798	545	2,086
S.S.W. . .	725	689	476	275	2,165
S.W. . .	...	...	34	...	34
W.N.W. . .	50	65	128	99	342
N.W. . .	59	46	17	...	122
N.N.W. . .	...	58	...	...	58
Total .	2,108	1,083	1,688	1,224	6,103

In 1889 the Meteorological Council gave a summary of gales in the United Kingdom for 15 years.

	Gales		Gales		Gales
January .	171	May . . .	12	September .	55
February .	115	June . : .	10	October . .	133
March . .	117	July . . .	11	November .	158
April . . .	40	August . .	32	December .	134

From N.E.	.	.	.	.	.	96
,, S.E.	.	.	.	.	.	165
,, N.W.	.	.	.	.	.	279
,, S.W.	.	.	.	.	.	448
						988

This gives an average of 66 gales a year.

The record at Athens for twelve years to 1870 showed as follows :—

	Spring	Summer	Autumn	Winter	Year
N. and N.E. .	28.3	42.5	41.0	40.2	38.0
E. and S.E. . .	4.8	3.9	4.7	6.4	4.9
S. and S.W. .	48.8	39.3	41.5	34.7	41.1
W. and N.W. .	18.1	14.3	12.8	18.7	16.0
Total .	100.0	100.0	100.0	100.0	100.0

Observations in the Crimea gave this result in quarters of the year :—

	N.–E.	E.–S.	S.–W.	W.–N.	Year
March 31 . . .	62	76	62	58	258
June 30 . . .	70	42	101	56	269
September 30 . .	86	15	74	66	241
December 31 . .	62	52	62	56	232
Total .	280	185	299	236	1,000

MILK

The analysis shows as follows :—

	Woman	Cow	Ass	Goat	Ewe
Fat . . .	2.5	4.0	1.1	3.3	4.2
Caseine . .	3.4	7.2	1.9	4.0	4.5
Sugar . . .	4.8	2.8	6.1	5.9	5.7
Water . . .	89.3	86.0	90.9	86.8	85.6
Total .	100.0	100.0	100.0	100.0	100.0

See *Dairy*.

MILLIONAIRES

Name	Profession	Estim. Wealth, £	Residence	Died
Seneca . .	Philosopher	3.400,000	Rome	65
Fugger . .	Banker	6,500,000	Augsburg	1506
Goldsmid .	,,	10,000,000	London	...
Astor . .	Furrier	6,000,000	New York	1848
Stewart . .	Haberdasher	16,000,000	,,	...
Vanderbilt .	Railroad director	36,000,000	,,	1877
Overstone .	Banker	4,000,000	London	1883
Rothschild .	,,	3,500,000	,,	1879
Brassey . .	Contractor	5,000,000	,,	1870
Krupp . .	Founder	3,000,000	Essen	...

MINING

In the early years of the present century the total output of the mines of the world was barely a million tons daily, and in the eight years ending 1888 it averaged over 12 million tons daily. In the former period minerals extracted stood for a value of 9 millions sterling per annum; at present the value at the pit's mouth is £210,000,000 yearly.

The mining products of the nineteenth century may be summed up approximately thus :—

	Tons							
	Gold	Silver	Copper Ore	Lead Ore	Zinc Ore	Tin Ore	Iron Ore	Coal
1801–20 . .	292	14,350	2,100,000	2,000,000	240,000	90,000	35,000,000	277,000,000
1821–40 . .	345	10,571	4,100,000	3,100,000	400,000	130,000	82,000,000	566,000,000
1841–50 . .	548	7,804	4,300,000	2,700,000	1,300,000	90,000	96,000,000	637,000,000
1851–60 . .	2,018	8,956	9,100,000	5,100,000	2,400,000	100,000	150,000,000	1,093,000,000
1861–70 . .	1,886	12,201	13,500,000	7,000,000	5,200,000	150,000	205,000,000	1,873,000,000
1871–80 . .	1,703	22,347	19,400,000	7,600,000	9,600,000	450,000	338,000,000	2,855,000,000
1881–88 . .	1,150	19,330	32,400,000	7,100,000	12,360,000	420,000	367,000,000	3,300,000,000
88 years . .	7,942	95,559	84,900,000	34,600,000	31,500,000	1,430,000	1,273,000,000	10,601,000,000

PLATE VII.

MINING.

Millions of tons raised yearly.

Total, 540 million tons.

Germany 96

U. States 160

France 26

Austria 23

Russia 12

Spain 7

Australia 8

Belgium 19

Various 4

U. Kingdom 185

U. States 107

Various 7

Italy 3

Spain 4

Austria 6

Belgium 7

Australia 8

France 10

Russia 15

Germany 25

U. Kingdom 59
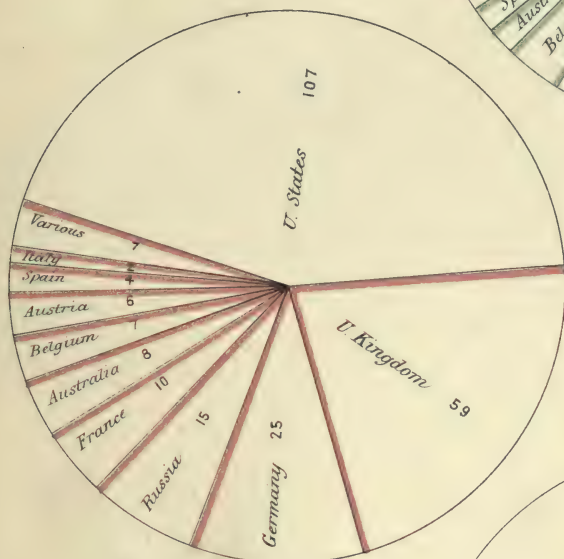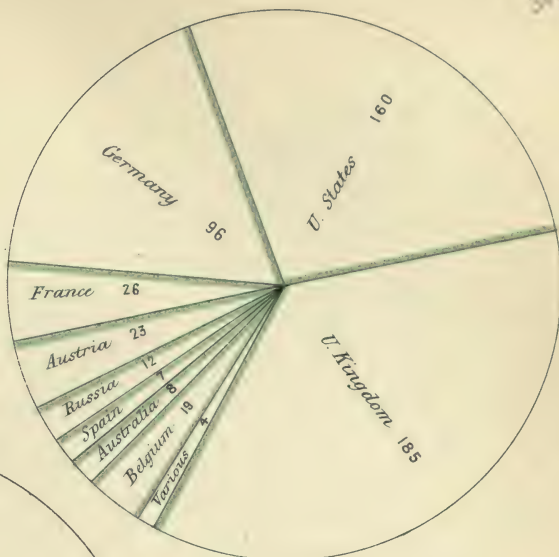
Value of Minerals, millions £ stg.

Total, 250 millions £ stg.

Minerals raised in 19th century, 1801-88.
Millions of Tons.
Total, 12,700 million tons.

Iron 1,273

Gold Quartz 612

Silver Ore 49

Copper 85

Lead &c. 80

Coal 10,601
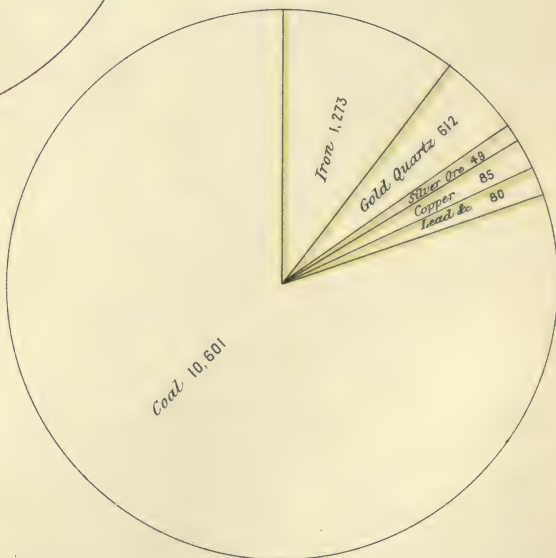
Value Millions £ Sterling								
	Gold	Silver	Copper	Lead	Zinc	Tin	Iron	Coal	Total
1801-20	41	125	4	10	...	4	13	136	333
1821-40	48	89	8	15	...	5	26	250	441
1841-50	77	67	9	14	1	5	30	253	456
1851-60	282	78	18	25	2	5	48	385	843
1861-70	264	105	25	29	4	8	70	681	1,186
1871-80	241	178	35	30	11	23	110	1,104	1,732
1881-88	148	154	50	28	14	21	115	1,050	1,580
88 years	1,101	796	149	151	32	71	412	3,859	6,571

The foregoing table of tonnage gives only the metal of gold and silver, the quantities of ore being unknown. It has been, however, stated that the average was in California 70,000 tons for one ton of gold, and in Australia 94,000 tons for one.* As regards silver, the ordinary yield in Spanish America is 80 oz. to the ton. At these rates we can estimate the amount of ore raised. The account of all mining will then stand thus :—

Millions of Tons Raised					
	Gold Quartz	Silver Ore	Iron Ore	Lead, &c.	Coal	Total
1801-20	23	7	35	4	277	346
1821-40	28	5	82	8	566	689
1841-50	44	4	96	8	637	789
1851-60	162	5	150	17	1,093	1,427
1861-70	142	7	205	26	1,873	2,253
1871-80	127	12	338	37	2,855	3,369
1881-88	86	9	367	52	3,300	3,814
88 years	612	49	1,273	152	10,601	12,687

As regards quantity, coal stood for nearly 85 per cent. of all minerals extracted.

The total mining product may be summed up thus :—

					Millions £ Sterling
Precious metals	.	.	.	.	1,897
Metallic ores	.	.	.	.	815
Coal	.	.	.	.	3,859
Total	.	.	.	.	6,571

The shares corresponding to the several countries were :—

Millions £ Sterling						
	Precious Metals	Iron Ore	Lead Ore	Copper Ore	Zinc and Tin	Coal	Total
United Kingdom	...	168	33	24	36	2,072	2,333
France	...	37	7	4	...	303	351
Germany	40	51	31	11	15	419	567
Russia	222	5	...	6	...	17	250
Austria	60	11	2	1	...	89	163
Belgium	...	8	...	...	7	243	258
United States	508	67	42	44	6	612	1,279
Australia	322	...	...	13	...	23	358
Various	745	65	36	46	39	81	1,012
Total	1,897	412	151	149	103	3,859	6,571

* The quartz raised by the gold mines of California and Australia would suffice to build 150 pyramids like that of Cheops. The gold extracted would fit in a room 40 by 20 feet, and 15 high.

Excluding precious metals, the values of mining products were, in order of time, as follows :—

	Millions £ Sterling							
Period	U. Kingdom	France	Germany	Austria	Belgium	U. States	Various	Total
1801-20 . . .	123	13	12	1	4	4	10	167
1821-40 . . .	204	27	23	4	19	7	20	304
1841-50 . . .	194	26	22	6	19	25	20	312
1851-60 . . .	267	37	45	8	36	54	36	483
1861-70 . . .	416	61	96	20	56	113	55	817
1871-80 . . .	658	101	151	31	68	205	99	1,313
1881-88 . . .	471	86	178	33	56	357	97	1,278
88 years . . .	2,333	351	527	103	258	765	337	4,674

Iron-mining may be summed up approximately as follows :—

	Million Tons Ore						
Period	Great Britain	United States	Germany	France	Spain	Various	Total
1801-20	17	3	4	6	...	5	35
1821-40	44	9	6	12	1	10	82
1841-50	49	10	7	14	1	15	96
1851-60	90	15	11	12	2	20	150
1861-70	101	27	31	17	4	25	205
1871-80	160	58	54	26	10	30	338
1881-88	116	90	72	22	37	30	367
88 years	577	212	185	109	55	135	1,273

The extraction of other minerals in 88 years was approximately as follows :—

	Tons		
	Lead	Copper	Tin
Great Britain . .	6,800,000	11,200,000	800,000
France	1,600,000	1,600,000	...
Germany	6,000,000	9,700,000	...
Russia	...	5,100,000	...
Austria	1,400,000	600,000	...
Italy	1,300,000	...	...
Spain	7,500,000	11,400,000	...
United States . .	9,600,000	29,300,000	...
Australia . . .	...	4,500,000	360,000
Various	400,000	11,500,000	270,000
Total . .	34,600,000	84,900,000	1,430,000

The number of persons employed in mining at various dates was approximately as follows :—

Year	Great Britain	United States	France	Germany	Various	Total
1820	165,000	10,000	20,000	30,000	25,000	250,000
1840	245,000	15,000	40,000	50,000	92,000	442,000
1860	497,000	70,000	70,000	159,000	220,000	1,016,000
1870	561,000	152,000	100,000	217,000	275,000	1,305,000
1880	654,000	234,000	120,000	300,000	450,000	1,758,000
1888	593,000	550,000	112,000	337,000	440,000	2,032,000

The weight of minerals raised compares with miners approximately, thus :—

Year	No. of Miners	Tons Raised	Tons per Man
1820 . . .	250,000	27,000,000	108
1840 . . .	442,000	71,000,000	160
1860 . . .	1,016,000	198,000,000	194
1870 . . .	1,305,000	290,000,000	222
1888 . . .	2,032,000	565,000,000	270

The ratio for British miners in 1889 was 330 tons per man.

The superiority of English miners is stated by the Iron and Steel Institute to be shown in the proportion of iron ore extracted by each miner yearly as follows :—

	Tons			Tons
England . . .	923	Spain . . .	.	292
France . . .	393	Germany . .	.	283
Algeria . . .	323	Belgium . .	.	127

This, however, appears to be exaggerated as regards English miners, for we find (see p. 401) that the annual product of all minerals in Great Britain in 1888 did not exceed 301 tons per miner.

In 1884 the deepest mines in the world were :—

Mine	Country	Mineral	Depth, Feet
Lambert	Belgium	Coal	3,490
Birkenberg	Austria	Silver	3,280
Zwickau	Saxony	Coal	2,637
St. Andre	Prussia	Silver	2,532
Rosebridge	England	Coal	2,510
Duckinfield	,,	,,	2,448
Magdala	Australia	Gold	1,990
Chaumont	France	Coal	1,876
Kongsberg	Norway	Silver	1,869
Schemnitz	Hungary	,,	1,771
La Huerta	Spain	,,	1,548

The production of metals in the present century has been approximately as follows :—

	Tons					
	Pig Iron	Copper	Lead	Tin	Zinc	Total
1801–20 . . .	13,200,000	170,000	1,400,000	60,000	40,000	14,870,000
1821–40 . . .	32,800,000	370,000	1,900,000	90,000	70,000	35,230,000
1841–50 . . .	33,500,000	335,000	1,600,000	60,000	210,000	35,555,000
1851–60 . . .	57,100,000	585,000	3,000,000	70,000	370,000	60,125,000
1861–70 . . .	93,600,000	780,000	4,000,000	100,000	950,000	97,880,000
1871–80 . . .	142,100,000	1,200,000	4,400,000	300,000	1,470,000	148,170,000
1881–88 . . .	176,000,000	1,540,000	4,100,000	280,000	1,910,000	183,030,000
88 years . . .	548,300,000	4,980,000	20,400,000	960,000	5,020,000	574,860,000

	Value, Millions £ Sterling					
	Pig Iron	Copper	Lead	Tin	Zinc	Total
1801–20 . .	97	17	42	5	1	162
1821–40 . .	209	37	38	6	1	291
1841–50 . .	151	34	29	6	4	224
1851–60 . .	188	58	43	8	7	304
1861–70 . .	301	70	49	12	18	450
1871–80 . .	425	94	62	33	24	638
1881–88 . .	446	105	50	25	28	654
88 years . . .	1,817	415	313	95	83	2,723

	Value, Millions £ Sterling					
	Pig Iron	Copper	Lead	Tin	Zinc	Total
Great Britain	723	162	82	61	29	1,057
France . .	181	19	16	5	1	222
Germany .	245	36	65	5	36	387
Russia . .	70	20	5	2	2	99
Austria . .	66	10	15	2	1	94
Belgium . .	72	10	16	2	2	102
U. States .	380	60	55	2	10	507
Various . .	80	98	59	16	2	255
Total .	1,817	415	313	95	83	2,723

UNITED KINGDOM

The progress of British mining may be approximately shown thus :—

	Tons Raised						
	Coal	Iron Ore	Copper Ore	Lead Ore	Zinc Ore	Tin Ore	Total
1780 . . .	8,500,000	200,000	30,000	40,000	5,000	5,000	8,780,000
1800 . . .	10,100,000	500,000	50,000	50,000	5,000	5,000	10,710,000
1820 . . .	14,000,000	1,000,000	100,000	60,000	5,000	5,000	15,170,000
1830 . . .	16,100,000	1,700,000	150,000	70,000	5,000	5,000	18,080,000
1840 . . .	35,000,000	3,500,000	150,000	80,000	10,000	5,000	38,795,000
1850 . . .	49,000,000	5,500,000	180,000	80,000	15,000	10,000	54,785,000
1860 . . .	80,000,000	8,000,000	240,000	100,000	15,000	10,000	88,285,000
1870 . . .	110,000,000	14,400,000	110,000	110,000	15,000	15,000	124,650,000
1880 . . .	147,000,000	18,000,000	55,000	90,000	30,000	15,000	165,190,000
1888 . . .	170,000,000	14,600,000	20,000	60,000	40,000	15,000	184,735,000

About 100 years ago the weight of minerals raised daily in Great Britain was 25,000 tons, and in 1888 it rose to 600,000. Improved machinery has effected a great economy of labour, one man in 1888 raising as much as four could do in 1800. This has caused a notable fall in the price of minerals. Thus it happens that although the weight of minerals raised has increased twenty-one-fold since 1780, the value of same has only risen ten-fold.

The total value of British mining in 88 years was approximately as follows :—

Period	Millions £ Sterling					
	Coal	Ironstone	Lead	Copper	Tin, &c.	Total
1801–20 .	105	6	5	3	4	123
1821–40 .	175	13	6	6	4	204
1841–50 .	168	14	4	4	4	194
1851–60 .	228	25	5	4	5	267
1861–70 .	370	31	5	4	6	416
1871–80 .	600	44	5	2	7	658
1881–88 .	426	35	3	1	6	471
88 years .	2,072	168	33	24	36	2,333

The weight of mineral raised compares with the number of miners approximately as follows :—

Year	Miners	Tons Raised	Tons per Man
1820 . . .	165,000	15,200,000	92
1840 . . .	245,000	38,800,000	160
1860 . . .	497,000	88,300,000	180
1870 . . .	561,000	122,300,000	218
1880 . . .	654,000	161,200,000	247
1888 . . .	593,000	184,600,000	301

The value of British mining per head of the population is shown in the following table :—

	Coal	Metallic Ores	Total	Per Inhabitant
	£	£	£	£ s. d.
1780	4,600,000	1,010,000	5,610,000	0 11 0
1800	5,500,000	1,210,000	6,710,000	0 9 0
1820	7,000,000	1,510,000	8,510,000	0 8 6
1830	6,500,000	2,010,000	8,510,000	0 7 6
1840	12,200,000	2,720,000	14,920,000	0 11 6
1850	16,500,000	3,430,000	19,930,000	0 15 0
1860	26,600,000	4,230,000	30,830,000	1 2 0
1870	45,000,000	6,630,000	51,630,000	1 14 0
1880	49,000,000	6,560,000	55,560,000	1 13 0
1888	53,600,000	5,180,000	58,780,000	1 10 6

In the above estimate of value, coal is taken at 25 per cent. under the price at port of shipment.

The official valuation for 1889 is as follows :—

	Tons	Value, £
Coal	176,900,000	56,200,000
Iron ore . . .	14,550,000	3,850,000
Tin ore . . .	14,000	730,000
Lead ore . . .	50,000	430,000
Copper ore . .	15,000	60,000
Zinc ore . . .	25,000	100,000
Salt	1,950,000	890,000
Oil shale . . .	2,010,000	500,000
Clays	3,040,000	830,000
Slate	460,000	1,050,000
Total . .	199,014,000	64,640,000

The above is exclusive of stone, to the value of £8,700,000, say 11,000,000 tons, which brings up the total to 210 million tons, representing an aggregate value of 73½ millions sterling.

The quantity and value of metals extracted from the foregoing minerals may be summed up as follows :—

	Tons	Value, £
Iron	5,180,000	12,700,000
Lead	36,000	460,000
Tin	9,000	860,000
Copper . . .	1,500	120,000
Zinc	10,000	190,000
Silver . . .	10	70,000
Total . .	5,236,510	14,400,000

The number of persons employed in mines in 1888 was as follows :—

Underground	465,000
Overground	127,700
Total . . .	592,700

Among those overground were 5700 women. The number of miners killed was as follows :—

Year	Killed	Per 10,000 Miners	One Killed in	Tons Raised per Miner Killed
1851–60	10,018	41	245	57,000
1861–70	10,626	33	300	104,000
1871–80	11,349	23	425	140,000
1888	960	21	484	198,000

The value of metals produced from British ores at various dates was approximately as follows :—

	1780	1800	1820	1840	1860	1889
	£	£	£	£	£	£
Iron	400,000	700,000	1,000,000	3,500,000	7,500,000	12,700,000
Tin	500,000	400,000	400,000	400,000	700,000	900,000
Lead, &c.	800,000	1,200,000	2,000,000	3,100,000	3,000,000	800,000
Total . .	1,700,000	2,300,000	3,400,000	7,000,000	11,200,000	14,400,000

FRANCE

The products of mines may be approximately summed up thus :—

	Tons		Value, £
	Coal	Iron Ore	
1800 . . .	800,000	200,000	600,000
1830 . . .	1,800,000	700,000	1,000,000
1850 . . .	5,000,000	900,000	2,800,000
1870 . . .	13,300,000	2,600,000	6,600,000
1888 . . .	23,000,000	2,600,000	9,600,000

The above is irrespective of salt and some minor items. An official return in 1883 of the coal-mines showed thus :—

Year	Miners	Tons Raised	Value, £
1860 . . .	59,000	8,300,000	2,400,000
1870 . . .	83,000	13,300,000	6,200,000
1880 . . .	107,000	19,400,000	9,900,000
1883 . . .	113,000	21,300,000	10,700,000

Detailed statistics of coal-mining in France will be found at pages 121 and 122.

2 C

The statement for all mining in 1886 showed thus :

	Miners	Tons Raised	Value, £
Coal	102,000	19,500,000	9,200,000
Iron ore . . .	6,000	2,300,000	400,000
Salt	4,000	640,000	500,000
Total . .	112,000	22,440,000	10,100,000

The quarries, moreover, employed 111,000 men, and their annual yield was about 8 million tons, valued at £6,600,000. The slate quarries of Ardenne, Bretagne, yield 120 million slates yearly. The total value of French mining in 88 years was approximately as follows :—

Period	Millions £ Sterling			
	Coal	Iron-stone	Lead and Copper	Total
1801–20 . .	11	2	...	13
1821–40 . .	23	4	...	27
1841–50 . .	21	4	1	26
1851–60 . .	31	5	1	37
1861–70 . .	53	6	2	61
1871–80 . .	89	9	3	101
1881–88 . .	75	7	4	86
88 years . .	303	37	11	351

The production of metals was approximately as follows :—

Year	Tons			Total Value, £
	Iron	Lead	Copper	
1830 . . .	220,000	1,000	1,000	1,600,000
1850 . . .	570,000	7,000	2,000	3,700,000
1880 . . .	1,720,000	32,000	5,000	6,200,000

GERMANY

The mining industry is shown approximately thus :—

Year	Tons				Value, £
	Coal	Iron Ore	Sundries	Total	
1800	300,000	100,000	200,000	600,000	200,000
1830	2,000,000	300,000	500,000	2,800,000	900,000
1850	6,600,000	800,000	800,000	8,100,000	2,600,000
1870	33,600,000	3,800,000	1,400,000	38,800,000	12,400,000
1888	82,000,000	10,700,000	3,100,000	95,800,000	24,700,000

At the beginning of the 19th century the quantity of minerals raised averaged only 2000 tons daily, but in 1888 it rose to 300,000 daily.

Von Decken's and official tables of mining in Germany show as follows :—

Year	Tons							
	Coal	Lignite	Iron Ore	Lead Ore	Zinc Ore	Copper Ore	Salt	Total
1850 . .	5,100,000	1,500,000	800,000	170,000	150,000	50,000	300,000	8,070,000
1860 . .	12,300,000	4,400,000	1,400,000	150,000	310,000	90,000	400,000	19,050,000
1870 . .	26,400,000	7,600,000	3,800,000	100,000	370,000	200,000	500,000	38,970,000
1880 . .	47,000,000	12,100,000	7,200,000	130,000	500,000	380,000	670,000	67,980,000
1888 . .	65,400,000	16,600,000	10,700,000	160,000	670,000	530,000	950,000	95,010,000

Year	Value, £							
1850 . .	1,500,000	200,000	200,000	300,000	100,000	50,000	300,000	2,650,000
1860 . .	4,000,000	700,000	400,000	600,000	200,000	150,000	400,000	6,350,000
1870 . .	8,200,000	1,100,000	1,200,000	800,000	300,000	250,000	500,000	12,350,000
1880 . .	12,100,000	2,000,000	1,700,000	600,000	400,000	300,000	600,000	17,700,000
1888 . .	16,500,000	2,500,000	2,000,000	800,000	700,000	800,000	500,000	23,800,000

Year	Number of Miners				Tons Raised	Tons per Miner
	Coal	Iron	Lead, &c.	Total		
1850	47,300	16,000	25,500	88,800	8,100,000	91
1860	102,100	18,500	38,500	159,100	19,100,000	119
1870	145,800	27,300	44,200	217,300	39,000,000	180
1875	209,000	26,400	41,800	277,300	52,600,000	190
1886	247,000	32,000	58,000	337,000	85,200,000	253

The total value of German mining in 88 years was approximately as follows :—

Period	Millions £ Sterling					
	Coal	Ironstone	Lead	Copper	Zinc	Total
1801–20 .	10	1	1	...	...	12
1821–40 .	18	2	2	...	1	23
1841–50 .	16	2	3	...	1	22
1851–60 .	34	3	5	1	2	45
1861–70 .	75	9	7	2	3	96
1871–80 .	121	16	7	3	4	151
1881–88 .	145	18	6	5	4	178
88 years .	419	51	31	11	15	527

Prussia has the lion's share of the mining industry, as appears from the returns for 1888, viz. :—

	Coal Raised, Tons	Value of all Minerals, £	Ratio	Pig Iron, Tons
Prussia . .	72,700,000	20,600,000	83.0	3,100,000
Saxony . .	5,200,000	2,200,000	9.0	300,000
Other States	4,100,000	1,900,000	8.0	940,000
Total .	82,000,000	24,700,000	100.0	4,340,000

There are 77 zinc mines in Prussia, which produce half the zinc of the world.

The production of metals was approximately as follows :—

Year	Tons				Total Value, £
	Iron	Lead	Copper	Zinc	
1850	400,000	16,000	2,000	30,000	4,400,000
1860	900,000	30,000	3,000	59,000	7,500,000
1870	1,340,000	54,000	5,000	65,000	12,000,000
1880	2,800,000	86,000	14,000	100,000	14,400,000
1888	4,400,000	92,000	18,000	130,000	18,500,000

- Official statements of the production and consumption of the following metals show thus :—

	Production, Tons		Consumption, Tons	
	1871	1886	1871	1886
Lead . . .	54,000	92,000	39,000	56,000
Copper . .	4,600	18,200	15,500	23,500
Zinc . . .	65,000	130,000	29,000	70,000
Tin . . .	100	100	2,500	6,500
Total .	123,700	240,300	86,000	156,000

RUSSIA

The mining product is shown approximately thus :—

Year	Tons				
	Coal	Iron Ore	Copper Ore	Salt	Naphtha
1840	10,000	110,000	60,000	440,000	...
1850	50,000	160,000	80,000	400,000	...
1860	130,000	180,000	90,000	420,000	...
1870	700,000	250,000	100,000	450,000	...
1880	4,100,000	650,000	100,000	780,000	350,000
1888	5,000,000	800,000	100,000	1,200,000	2,000,000

All the above are, however, of minor value compared with the gold-fields, which are mostly situated in Siberia, the product of precious metals showing as follows :—

Period	Tons		Value, £		
	Gold	Silver	Gold	Silver	Total
1821–30	33	200	4,600,000	1,600,000	6,200,000
1831–40	69	250	9,800,000	2,200,000	12,000,000
1841–50	217	230	30,400,000	2,500,000	32,900,000
1851–60	256	170	35,800,000	1,500,000	37,300,000
1861–70	271	150	38,000,000	1,300,000	39,300,000
1871–80	380	130	53,200,000	1,000,000	54,200,000
1881–88	280	90	39,200,000	600,000	39,800,000
68 years	1,506	1,220	211,000,000	10,700,000	221,700,000

The regular mining of precious metals began in Siberia in 1704, silver being the first metal found. Gold was discovered in the Ural Mountains in 1745, near Ekaterinenberg, and in 1810 these mines were producing 10,000 oz., worth £40,000 per annum. From 1814 to 1880 the yield of the various gold mines was :—

		Tons	Value, £
Ural		330	46,200,000
East Siberia . . .		790	110,600,000
West Siberia . . .		80	11,200,000
Total . .		1,200	168,000,000

The total mining product of Russia in the nineteenth century may be summed up approximately thus :—

Period	Millions Sterling		
	Gold and Silver	Copper, Coal, &c.	Total
1801–20 . .	3	1	4
1821–40 . .	18	2	20
1841–50 . .	33	3	36
1851–60 . .	37	3	40
1861–70 . .	39	5	44
1871–80 . .	54	12	66
1881–88 . .	40	16	56
88 years . .	224	42	266

The production of base metals in 1886 was as follows :—

	Tons	Approximate Value, £
Iron	530,000	1,600,000
Copper	4,500	400,000
Zinc	4,100	60,000
Total . .	538,600	2,060,000

The annual value of all mining and metallic industries is about 15 millions sterling. They occupy 250,000 persons and 3450 steam-engines, with an aggregate of 100,000 horse-power.

AUSTRIA

Mining industry is summed up approximately thus :—

Year	Tons			
	Coal	Iron Ore	Copper Ore	Lead Ore
1840 . .	400,000	180,000	5,000	10,000
1860 . .	3,500,000	500,000	10,000	15,000
1880 . .	16,100,000	1,100,000	15,000	15,000
1888 . .	20,000,000	1,800,000	15,000	15,000

In 1834 the following report was published :—

	Mining Output, Tons		
	Austria	Hungary	Total
Coal . . .	170,000	20,000	190,000
Iron, pig . .	70,000	15,000	85,000
Salt . .	160,000	100,000	260,000
Lead ore .	4,000	1,000	5,000
Copper ore . .	200	2,000	2,200
Total . .	404,200	138,000	542,200

In 1850 the mines of the Empire were estimated to yield as follows :—

	Tons
Coal	2,000,000
Iron ore	280,000
Salt	600,000
Lead, &c.	24,000
	2,904,000

An official report of mining for Austria proper in 1887 showed :—

	Tons			Value, £		
	Bohemia	Other Provinces	Total	Bohemia	Other Provinces	Total
Coal	3,500,000	4,300,000	7,800,000	800,000	1,000,000	1,800,000
Lignite . . .	8,900,000	2,700,000	11,600,000	900,000	600,000	1,500,000
Iron ore . . .	300,000	540,000	840,000	40,000	120,000	160,000
Salt	...	280,000	280,000	...	280,000	280,000
Lead, &c. . .	200,000	120,000	320,000	300,000	500,000	800,000
Total . .	12,900,000	7,940,000	20,840,000	2,040,000	2,500,000	4,540,000

The hands employed in the above mines in 1887 were :—

	Men	Women	Total
Coal	36,600	6,000	42,600
Lignite. . . .	30,000	2,500	32,500
Iron	4,000	100	4,100
Salt, &c. . . .	22,200	3,300	25,500
Total . .	92,800	11,900	104,700
Bohemia . . .	42,000	4,500	46,500
Silesia . . .	13,600	2,800	16,400
Galitzia . . .	12,200	1,000	13,200
Styria, &c. . .	25,000	3,600	28,600
Total .	92,800	11,900	104,700

A report on the production of minerals and metals in Hungary showed thus :—

	1864	1874	1883
	Tons	Tons	Tons
Coal . . .	350,000	620,000	900,000
Lignite . .	250,000	780,000	1,500,000
Pig iron . .	120,000	170,000	180,000
Copper . .	2,200	1,000	1,000
Lead . . .	1,500	1,500	2,000
Total .	723,700	1,572,500	2,583,000

There was also a yield of £200,000 worth of gold and £100,000 of silver.
The mining values in 1886 were stated thus :—

	Austria	Hungary	Total
	£	£	£
Coal . . .	1,800,000	400,000	2,200,000
Lignite . .	1,800,000	400,000	2,200,000
Pig iron . .	1,800,000	800,000	2,600,000
Lead, &c. . .	1,400,000	600,000	2,000,000
Total .	6,800,000	2,200,000	9,000,000

This table confuses the values of minerals and metals ; the actual value was—minerals £5,400,000, metals £3,600,000.

ITALY

The production of iron ore is recorded as follows :—

Year	Tons	Value, £
1850	64,000	36,000
1860	71,000	40,000
1870	74,000	42,000
1887	230,000	100,000

The returns for 1877 and 1887 compare as follows :—

	Tons		Value, £	
	1877	1887	1877	1887
Sulphur . .	130,000	340,000	1,050,000	950,000
Iron ore . .	110,000	230,000	110,000	100,000
Zinc ore . .	45,000	90,000	180,000	250,000
Lead ore .	18,000	40,000	440,000	280,000
Sundries . .	21,000	470,000	260,000	420,000
Total . .	324,000	1,170,000	2,040,000	2,000,000

In 1877 the number of miners was 41,000, and in 1887 it was 47,000. This is exclusive of marble quarries, which employ 20,000 men, and have an annual output of a million sterling.

SPAIN

An official report of mining products in 1780 was as follows :—

	Tons	Valve, £
Iron	9,000	70,000
Lead	1,600	30,000
Quicksilver . . .	900	180,000
Antimony, &c. . .	500	30,000
Total . . .	12,000	310,000

A report published in 1863 was as follows :—

	Tons		Tons
Coal . . .	320,000	Ironstone . .	170,000
Salt . . .	3,800,000	Zinc ore . .	110,000
Copper ore. .	140,000	Sulphur . .	23,000
Lead ore . .	310,000	Quicksilver .	1,000

In 1887 the export of minerals showed :—

	Tons	Value, £
Iron Ore	5,200,000	1,800,000
Copper Ore . . .	800,000	1,200,000
Lead	63,000	900,000
Quicksilver . .	1,300	300,000
Sundries . . .	300,000	500,000
Total . .	6,364,000	4,700,000

The mines employed 57,000 hands in 1887.
There has been of late years a great increase in the production of coal, ironstone and copper, but a decline in lead.

The mining industry of Spain in the last 28 years may be summed up approximately as follows :—

Period	Coal	Ironstone	Copper Ore	Lead Ore	Zinc Ore	Quicksilver	Total
1861–70 . . .	3,000,000	2,000,000	1,500,000	2,500,000	1,000,000	10,000	10,010,000
1871–80 . . .	6,000,000	10,400,000	3,800,000	2,000,000	1,000,000	10,000	23,210,000
1881–88 . . .	8,600,000	37,100,000	5,300,000	1,500,000	800,000	10,000	53,310,000
28 years . . .	17,600,000	49,500,000	10,600,000	6,000,000	2,800,000	30,000	86,530,000
Value, £							
1861–70 . . .	1,000,000	800,000	2,400,000	7,500,000	2,000,000	2,000,000	15,700,000
1871–80 . . .	2,000,000	4,200,000	6,000,000	6,000,000	2,000,000	2,000,000	22,200,000
1881–88 . . .	2,800,000	13,000,000	8,400,000	4,500,000	1,600,000	2,000,000	32,300,000
28 years . . .	5,800,000	18,000,000	16,800,000	18,000,000	5,600,000	6,000,000	70,200,000

BELGIUM

The official records for 48 years show as follows :—

Year	Tons Raised			Value, £			Miners	Tons Coal per Collier
	Coal	Iron	Total	Coal	Iron	Total		
1840 . . .	3,900,000	200,000	4,100,000	1,800,000	100,000	1,900,000	...	...
1850 . . .	5,800,000	300,000	6,100,000	1,800,000	100,000	1,900,000	42,100	121
1860 . . .	9,600,000	800,000	10,400,000	4,300,000	300,000	4,600,000	71,100	123
1870 . . .	13,700,000	700,000	14,400,000	6,000,000	200,000	6,200,000	79,800	149
1880 . . .	16,900,000	300,000	17,200,000	6,800,000	100,000	6,900,000	81,400	164
1887 . . .	18,400,000	200,000	18,600,000	5,950,000	50,000	6,000,000	77,000	182

There are, moreover, stone quarries, whose product is valued at £1,300,000 per annum.

SWEDEN AND NORWAY

The mining products of Sweden may be summed up as 900,000 tons of iron ore and 300,000 tons of coal ; the mines employ 29,000 persons. The production of iron ore has trebled since 1850. Norway has 28 mines, employing 2000 hands, the output averaging £180,000 per annum. The mining returns of Sweden for 1870 and 1887 compare thus :—

	Tons Ore	
	1870	1887
Iron	700,000	900,000
Copper	2,000	1,000
Zinc	33,000	50,000

Of precious metals Sweden raised in 1870 gold to the value of £150,000 and silver worth £10,000 ; in 1887 silver represented £40,000 sterling.

GREECE

The lead mines of Laurium have been worked for many years by a French company, producing 1,200,000 tons ore in twelve years ending 1888, one half of which was smelted near the mines. Small quantities of zinc ore are also raised in Greece. The total value of mineral products is about £600,000 yearly.

UNITED STATES

The following table shows the date of discovery and the commencement of mining of certain minerals :—

	Place	Discovered	Began Mining
Iron	Virginia	1610	1663
Copper . . .	Massachusetts	1632	1648
Coal	Pennsylvania	1768	1784
Lead	...	1823	1829
Petroleum . .	Pennsylvania	1826	1845
Gold	California	1849	1849
Silver . . .	Nevada	1858	1859
Quicksilver . .	California	1860	1860

The first iron-foundry was at Lynn, Massachusetts, the first copper smelting-works at Salem in the same State. In 1660 the Dutch worked copper mines in New Jersey, and about the same time the French Jesuits at Lake Superior. A cargo of ninety tons of copper was shipped from New York in 1766, but little progress was made until 1843, when the United States Government bought the Lake Superior copper-fields from the Chippeway Indians. The production of lead in 1829 was 7200 tons. The first regular oil-wells were found near Pittsburg, Pennsylvania, in 1845 (see *Oil*). Gold was discovered at Sutor's Mill, California, in 1849, silver by J. H. Comstock and James Phinney at Storey Co., Nevada, in 1858 ; small quantities of gold had been found in the Southern States previously.

The following table shows approximately the principal mining products (except gold and silver) at various dates :—

Year	Tons				
	Coal	Iron Ore	Copper Ore	Lead Ore	Total
1830	1,300,000	400,000	...	7,000	1,707,000
1840	1,800,000	600,000	...	10,000	2,410,000
1850	8,000,000	1,200,000	5,000	50,000	9,255,000
1860	15,000,000	1,600,000	40,000	80,000	16,720,000
1870	33,000,000	3,200,000	80,000	100,000	36,380,000
1880	70,500,000	8,000,000	120,000	150,000	78,770,000
1889	142,000,000	13,300,000	600,000	250,000	156,150,000

The production of precious metals is shown as follows :—

Period	Tons		Value, Millions £ Sterling		
	Gold	Silver	Gold	Silver	Total
1851–60 . .	830	7	116	...	116
1861–70 . .	713	2,375	100	20	120
1871–80 . .	620	7,750	87	62	149
1881–88 . .	373	8,860	52	62	114
38 years . .	2,536	18,992	355	144	502

The total value of mining products in 88 years was approximately as follows :—

Period	Millions £ Sterling								
	Gold	Silver	Ironstone	Copper	Lead	Petroleum	Coal	Sundries	Total
1801–40 . .	1	...	3	...	1	...	7	...	12
1841–50 . .	8	...	3	1	3	...	18	...	33
1851–60 . .	116	...	5	3	6	3	40	...	173
1861–70 . .	100	20	9	5	8	17	91	2	252
1871–80 . .	87	62	18	9	11	33	167	4	391
1881–88 . .	52	62	29	26	13	37	289	5	513
88 years . .	364	144	67	44	42	90	612	11	1,374

The production of metallic copper and lead, according to Keller, was as follows :—

Copper			Lead		
Year		Tons	Year		Tons
1845 . . .		100	18 2 . . .		9,100
1850 . . .		650	1842 . . .		21,800
1855 . . .		3,000	1852 . . .		14,300
1860 . . .		7,300	1862 . . .		12,900
1865 . . .		8,600	1872 . . .		23,500
1870 . . .		12,800	1875 . . .		54,100
1875 . . .		18,300	1878 . . .		82,600
1880 . . .		27,400	1880 . . .		88,700
1882 . . .		41,600	1882 . . .		120,000

About 60 per cent. of the copper comes from the Lake Superior fields above mentioned, which produced 190,000 tons of metallic copper in the ten years ending 1882.

Official returns for 1888 are as follows :—

	Metallic Products					Non-Metallic	
	Tons	Value, £		•		Tons	Value, £
Pig iron	6,500,000	22,200,000	Coal			142,040,000	47,100,000
Copper	105,000	7,100,000	Stone			...	5,300,000
Lead	160,000	3,300,000	Lime			4,500,000	5,100,000
Zinc	50,000	1,100,000	Cement			900,000	900,000
Gold, oz. . . .	1,600,000	6,800,000	Salt			1,050,000	900,000
Silver, oz. . . .	45,800,000	12,300,000	Petroleum			5,500,000	5,100,000
Sundries	...	300,000	Sundries			...	7,000,000
Total . .	...	53,100,000	Total . .			...	71,400,000

Mining and metallic industries together represent 125 millions sterling, but this allows an excessive value for silver, from which a deduction of £2,000,000 should be made.

AUSTRALIA

The official report by Mr. Coghlan shows the total value of minerals extracted in thirty-eight years down to 1888 was as follows :—

	£ Sterling					
	Gold	Silver	Copper	Tin	Coal	Total
New South Wales . .	37,200,000	2,900,000	5,400,000	8,500,000	22,300,000	76,300,000
Victoria . . .	222,500,000	100,000	200.000	700,000	...	223,500,000
Queensland . .	21,300,000	400,000	1,700,000	5,100,000	900,000	29,400,000
South Australia . .	900,000	...	19,200,000	...	...	20,100,000
New Zealand . .	44,800,000	100,000	...	...	2,700,000	47,600,000
Tasmania . . .	2,000,000	...	...	4,400,000	200,000	6,600,000
Western Australia .	200,000	300,000	500,000	...	...	1,000,000
Total . .	328,900,000	3,800,000	26,000,000	18,700,000	26,100,000	404,500,000

The quantities of gold extracted were as follows :—

Colony	Gold Found	Ounces Extracted	Value, £
New South Wales .	1851	9,973,000	37,200,000
Victoria . .	1851	55,636,000	222,500,000
South Australia .	1852	248,000	900,000
Tasmania . .	1852	533,000	2,000,000
Queensland .	1858	6,089,000	21,300,000
New Zealand .	1858	11,422,000	44,800,000
Western Australia .	1886	55,000	200,000
Total . .	...	83,955,000	328,900,000

The values of gold produced and exported were as follows :—

Period	Produced, £	Exported, £
1851–60 . . .	118,000,000	97,500,000
1861–70 . . .	95,000,000	97,900,000
1871–80 . . .	81,000,000	65,200,000
1881–88 . . .	35,000,000	33,200,000
38 years . . .	329,000,000*	293,800,000

Copper was first found in South Australia in 1843, tin in New South Wales in 1872, and silver in the latter colony in 1881. The first coal was raised in New South Wales in 1847, namely, 40,000 tons, the product now reaching 4,200,000 tons.

* In the article on gold and silver (p. 306), it will be seen that the gold yield of Australia for the said thirty-eight years is put down at 322 millions sterling. Liversidge makes the yield of coal 44 million tons to 1888.

The yield of gold-fields in 1888 was as follows :—

	Gold, Oz.	Value, £	No. of Miners	Oz. per Man
New South Wales	88,000	320,000	8,300	10.6
Victoria . . .	625,000	2,500,000	25,100	25.0
Queensland . .	482,000	1,700,000	9,300	52.0
South Australia .	17.000	70,000	400	39.0
Tasmania . . .	40,000	150,000	900	44.0
New Zealand . .	201,000	800,000	9,400	21.5
Western Australia	50,000	200,000	800	62.0
Total . .	1,502,000	5,740,000	54,200	27.5

The largest nuggets on record are :—

Name	Locality	Oz.	Value, £	Date
Welcome	Ballarat	2,020	8,380	9th June 1858
Stranger	...	2,280	9,460	9th Feb. 1869

The deepest mines are Magdala, Stawell, 2409 feet, and Lansell's, Sandhurst, 2640 feet.

SOUTH AFRICA

The Transvaal gold-fields, recently discovered, promise to be very productive, the value extracted in 1889 reaching £1,300,000 sterling.

BOLIVIA

In 1883 the extraction of silver was as follows :—

	Oz.	Value, £
Huanchaca . . .	5,600,000	900,000
Potosi . . .	1,200,000	200,000
Oruro . . .	1,200,000	200,000
Aullagas . . .	3,200,000	500,000
Guadelupe, &c. . .	4,800,000	800,000
Total . .	16,000,000	2,600,000

The Potosi mines yielded 600 millions sterling in 320 years.

CANADA

The mining products in 1887 were :—

	Tons	Value, £
Coal	2,100,000	1,000,000
Gold	...	200,000
Sundries	...	1,800,000
Total . . .	...	3,000,000

MEXICO

There are 350 mines, which are said to occupy 100,000 men. In sixty years ending 1880 were raised 180 millions sterling worth of silver, and nearly one million sterling of gold. The mines are supposed at present to stand for a capital of 6 millions sterling. According to Messdaglia, the mines yielded in 383 years, to 1875, as follows :—

	Tons	Value, £
Gold	265	36,000,000
Silver	76,200	677,000,000
Total . . .	76,465	713,000,000

ARGENTINA

Rickard's report in 1869 showed 2700 men employed in various mines. The product was 3000 oz. gold, 44,000 oz. silver, 700 tons copper, and 1000 tons lead ; total value £70,000 per annum, the capital employed being £300,000.

In 1885 the yield of the mines was estimated thus :—

		£
Catamarca	Copper	70,000
San Juan	Silver	40,000
Mendoza	,,	40,000
Cordoba and Rioja . . .	,,	64,000
Total . . .		214,000

The actual yield is supposed at present to barely reach £150,000.

CHILE

Copper is the most important mineral, and the ores extracted since 1850 are supposed to be equivalent to the following quantities of fine copper :—

Period	Tons	Value, £
1851-60	190,000	15,200,000
1861-70	270,000	20,500,000
1871-80	330,000	20,300,000
1881-88	300,000	18,000,000
38 years	1,090,000	74,000,000

In late years nitrate has obtained importance, shipments rising from 350,000 tons in 1885 to 800,000 in 1888. The coal-fields are supposed to yield 10 million tons yearly ; and the silver mines 5 million oz. of that metal, worth £800,000.

VENEZUELA

The latest reports show as follows :—

	Oz.	Value, £
Gold	250,000	900,000
Copper	...	150,000
Total . . .	...	1,050,000

MONEY

The amount of money in use among nations at various dates was (excluding copper and nickel, which are of trifling value) approximately as follows :—

	Millions £ Sterling			
	Gold	Silver	Paper	Total
1600	29	102	...	131
1700	75	225	1	301
1800	126	360	82	568
1848	157	388	260	805
1860	340	480	360	1,180
1890	830	801	771	2,402

The above includes the paper-money only of Europe, United States, the British Colonies, and the Colonies of France and Spain. No account is taken of the depreciated currency of South America, the value of which is merely conventional, and for the most part ideal.

The money now in use is approximately as follows :—

	Millions £ Sterling				£ per Inhabitant
	Gold	Silver	Paper	Total	
Great Britain . .	102	22	39	163	4.4
France . . .	178	150	115	443	11.8
Germany . . .	122	45	71	238	5.0
Russia . . .	39	14	123	176	2.1
Austria . . .	8	19	76	103	2.6
Italy . . .	22	11	57	90	3.0
Spain . . .	19	24	30	73	4.2
Portugal . . .	9	2	1	12	2.7
Scandinavia . .	6	2	13	21	2.8
Holland . . .	5	13	17	35	7.7
Belgium . . .	11	11	15	37	6.1
Switzerland . .	3	3	6	12	4.0
Turkey, &c. . .	17	12	9	38	3.4
Europe . . .	541	328	572	1,441	4.0
United States . .	141	87	208	436	7.0
Canada . . .	3	1	6	10	2.0
Australia . . .	22	2	6	30	8.2
Japan . . .	19	9	26	54	1.4
China . . .	...	150	...	150	0.5
India . . .	10	170	12	192	1.0
Java . . .	...	18	...	18	0.9
Cape Colony . .	7	...	1	8	6.0
Egypt . . .	27	4	...	31	6.2
Algeria . . .	2	3	3	8	2.0
Cuba . . .	4	...	12	16	10.0
Various . . .	14	29	...	43	...
Total . .	790	801	846	2,437	...

For the amounts of gold and silver coined between 1850 and 1890 see *Gold*.

The amount of uncovered paper-money, according to Spallart, was as follows :—

	Millions £ Sterling		
	1850	1870	1885
United Kingdom . .	15	12	12
France	3	8	27
Germany . . .	2	22	25
Russia	31	91	67
Austria	18	58	40
Italy	...	36	34
United States . .	15	130	65
Various . . .	4	32	72
Total . .	88	390	342

The following table shows approximately the amounts of paper-money at various dates :—

	Millions £ Sterling			
	1840	1860	1880	1890
United Kingdom .	35	39	45	39
France . . .	9	33	90	115
Germany . . .	8	25	57	71
Russia . . .	70	105	115	123
Austria . . .	43	60	65	76
Italy	2	6	65	57
Various . . .	18	36	64	91
Europe . . .	185	304	501	572
United States .	20	41	144	133
Colonies, &c. .	1	15	66	69
Total .	206	360	711	771

The above is exclusive of the paper-money of South America, which has a very doubtful value.

Money was first coined by King Pheidon of Argos, 800 B.C., of silver only. Crœsus was the first, says Herodotus, to coin gold. Darius coined gold and silver at 13½ units of silver to one of gold.

The principal coins at present in use are :—

Gold

Country	Name	Weight	Fineness	Value		
		Oz.		£	s.	d.
Austria . . .	Ducat . .	0.112	986	0	9	6
,, . . .	Crown . .	0.357	900	1	7	8
Bolivia . . .	Doubloon .	0.867	870	3	5	0
Brazil . . .	20-Milrei .	0.575	917	2	5	6
Chili . . .	Condor . .	0.492	900	1	18	2
Denmark . .	10-Thaler .	0.427	895	1	13	0
France . . .	20-Francs .	0.207	899	0	16	0
Germany . .	10-Thaler .	0.427	903	1	13	4
Great Britain .	Sovereign .	0.257	916	1	0	0
Greece . . .	20-Drachms .	0.185	900	0	14	4
Holland . .	10-Guilder .	0.215	899	0	16	8
India . . .	Mohur . .	0.374	916	1	9	6
Japan . . .	Cobang .	0.362	568	0	18	6
Persia . . .	Toman . .	...	885	0	5	3
Russia . . .	5-Rouble .	0.210	916	0	16	8
Spain . . .	Alfonso .	0.268	896	1	0	8
Sweden . . .	Ducat . .	0.111	975	0	9	4
Turkey . . .	100-Piastres .	0.231	915	0	18	2

Silver

Country	Name	Weight	Fineness	Value		
		Oz.		£	s.	d.
Austria . . .	Florin . .	0.397	900	0	2	0
,, . . .	Dollar . .	0.596	900	0	3	0
Bolivia . . .	Half-dollar .	0.432	667	0	1	8
Brazil . . .	Milrei . .	0.410	918	0	2	2
Chili . . .	Dollar . .	0.801	900	0	4	1
China . . .	Tael . . .	...	...	0	6	0
Denmark . .	2-Rigsdaler .	0.927	877	0	4	7
France . . .	5-Francs .	0.800	900	0	4	0
Germany . .	Thaler . .	0.595	900	0	3	0
Great Britain .	Shilling . .	0.182	925	0	1	0
Greece . . .	5-Drachms .	0.719	900	0	3	8
Holland . .	2½-Guilder .	0.804	944	0	4	2
India . . .	Rupee . .	0.374	916	0	1	10
Japan . . .	Itzebu . .	0.279	890	0	1	5
Persia . . .	Kran . .	...	...	0	0	6
Russia . . .	Rouble . .	0.667	875	0	3	4
Spain . . .	Peseta . .	0.166	899	0	0	10
Sweden . . .	Rixdaler .	1.092	750	0	4	8
Turkey . . .	20-Piastres .	0.770	830	0	3	7

Some African tribes use cowrie shells, 200 being value for 1d.

UNITED KINGDOM

According to the best economists, the amount of money at various dates was approximately as follows :—

	Millions £ Sterling				
	Gold	Silver	Paper	Total	£ per Inhabitant
1600 . . .	1	2	...	3	0.6
1700 . . .	12	4	1	17	3.0
1800 . . .	37	8	25	70	4.4
1848 . . .	55	11	34	100	3.7
1890 . . .	102	22	39	163	4.4

The following table shows the principal gold coins in use from the fourteenth century to date :—

Name	Date	Nominal Value			In Present Money		
		£	s.	d.	£	s.	d.
Noble . . .	1345	0	6	8	1	1	10
Angel . . .	1465	0	6	8	0	11	9
Crown . . .	1530	0	5	0	0	7	6
Sovereign . . .	1551	1	10	0	1	8	0
Noble . . .	1600	0	15	0	0	16	0
Sovereign . . .	1626	1	0	0	1	1	4

The amount of gold and silver coined from Henry III. to December 1889 was as follows :—

Reign	Gold	Silver	Total	Per Annum
	£	£	£	£
Henry III. .	...	3,898	3,898	...
Edward I. .	...	38,603	38,603	1,100
Edward II. .	...	45,751	45,751	2,300
Edward III.	11,344	85,703	97,047	1,960
Richard II.	3,988	2,228	6,216	300
Henry IV. .	396	315	711	...
Henry V. . .	19,746	6,924	26,670	3,000
Henry VI. .	318,444	579,225	897,669	22,000
Edward IV.	10,248	47,843	58,091	2,700
Henry VII.	8,399	116,100	124,499	5,000
Henry VIII.	675,400	642,810	1,318,210	34,500
Mary . .	...	6,500	6,500	...
Elizabeth .	795,135	4,836,802	5,631,937	125,000
James I. .	3,666,400	1,807,300	5,473,700	248,000
Charles I. .	3,319,700	8,776,545	12,096,245	502,000
Cromwell .	154,512	1,000,000	1,154,512	115,000
Charles II.	4,177,254	3,722,180	7,899,434	320,000
James II. .	2,113,639	2,115,600	4,229,239	1,410,000
William III.	3,418,060	7,094,080	10,512,140	820,000
Anne . .	2,485,100	618,200	3,103,300	255,000
George I. .	8,492,900	223,050	8,715,950	670,000
George II. .	11,662,200	304,360	11,966,560	360,000
George III.	75,447,489	6,827,800	82,275,289	1,370,000
George IV.	36,395,100	2,216,168	38,611,268	3,860,000
William IV.	10,920,035	1,122,100	12,042,135	1,720,000
Victoria .	312,300,000	231,800,000	544,100,000	10,300,000
Total .	476,390,489	274,040,085	750,430,574	...

Henry III. coined at Canterbury, Edward III. at York and Calais, Edward IV. at Bristol, the rest mostly at London. The coinage, however, of the present reign has been as follows :—

At	Gold, £	Silver, £	Total, £
London . .	207,000,000	25,800,000	232,800,000
Sydney . .	61,300,000	...	61,300,000
Melbourne . .	42,000,000	...	42,000,000
India . . .	2,000,000	206,000,000	208,000,000
Total .	312,300,000	231,800,000	544,100,000

It appears that Queen Victoria has coined 65 per cent. of the gold and 84 per cent. of the silver struck by British monarchs in 600 years. Shillings were first coined by Henry VIII. in 1544; crowns, half-crowns, sixpences, and threepennies by Edward VI. The percentage of alloy in British coins was as follows :—

Reigns		Per Cent.
Henry III. to Henry VII.	. . .	8
Henry VIII.	. . . .	33
Edward VI.	. . . .	25

Queen Elizabeth improved the character of the coinage, but reduced the size of all coins: thus 3s. of her money had only the same quality of silver as 1s. of Edward I. The following table shows how much money was coined out of 12 oz. troy weight of either metal in successive reigns :—

Date	Gold, 12 oz. (24 carats)	Silver, 12 oz.	Reign
	£ s. d.	£ s. d.	
1280 . . .	12 10 0	1 0 3	Edward I.
1370 . . .	15 0 0	1 5 0	Edward III.
1420 . . .	16 13 4	1 10 0	Henry V.
1470 . . .	22 10 0	1 17 6	Edward IV.
1540 . . .	30 0 0	2 8 0	Henry VIII.
1550 . . .	36 0 0	3 12 0	Edward VI.
1590 . . .	33 0 0	3 12 0	Elizabeth
1640 . . .	44 10 0	3 2 0	Charles I.

The total amount of currency called in by Queen Elizabeth and re-minted was :—

	Oz.	Value, £
Gold . . .	360,000	1,080,000
Silver . . .	4,800,000	1,200,000

No change was made in the weight or value of coins from 1640 until 1816, in which latter year the pound of silver (12 oz. troy) was ordered to be made into 66s. instead of 62s. as before. The Mint thus established a seignorage or profit of 4s. an ounce on silver, but no charge is made on gold; the expense of coining gold is 10s. per £100. Silver money is legal tender only up to 40s.; gold to any amount. The paper-money of the United Kingdom has been stationary since 1830, viz. :—

	1830	1890
	£	£
Bank of England . .	20,100,000	24,600,000
Other English banks .	10,100,000	3,000,000
Scotch banks . .	4,000,000	5,700,000
Irish banks . .	4,200,000	5,800,000
Total .	38,400,000	39,100,000

For details of the Bank of England see *Banks*.
The suspension of specie payments caused by the war against Bonaparte began in 1797 and lasted till 1821, the value of a £5 Bank of England note varying as follows :—

Gold Value of Bank of England £5 Note

Years	Shillings	Years	Shillings
1797-99 . . .	100	1813 . . .	73
1800-1 . . .	92	1814 . . .	80
1802-3 . . .	96	1815 . . .	84
1804-8 . . .	97	1816 . . .	96
1809 . . .	91	1817 . . .	98
1810 . . .	87	1818-19 . . .	97
1811 . . .	83	1820 . . .	100
1812 . . .	79		

In 1878 the currency of the Bank of England was found to be composed as follows :—

Value of Note	Number	Amount	Ratio per Cent.
£5	2,208,000	£11,040,000	39
£10 . . .	507,000	5,070,000	18
£20-50-100 . .	160,000	8,030,000	28
£200-300-500 . .	7,000	2,120,000	8
£1000 . . .	2,000	2,000,000	7
Total . .	2,884,000	£28,260,000	100

The notes cost one halfpenny each. The life of a bank-note in 1880 was under seventy days, the number issued during the year having been 15,260,000 for an aggregate amount of 338 millions, say £22 each. The average in the above table for 1878 is only £10 each.
According to the Mint report for 1890, the gold currency of the United Kingdom consists of about 80 million sovereigns and 45 million half-sovereigns, together £102,500,000.

FRANCE

The following is a table of old French coins :—

Date	Name	Value	Date	Name	Value
		£ s. d.			£ s. d.
1226	Angel	0 11 3	1507	Porcupine	0 9 0
1258	Tournois	0 0 9	1539	Salamander	0 9 0
1289	Esterlin	0 0 3	1550	Henri	0 9 5
1294	Royal	0 19 0	1575	Franc	0 2 3
1346	Couronne	0 15 0	1640	Louis	0 16 8
1428	Mouton	0 5 6	1652	,, silver	0 4 8
1430	Royal	0 10 4	1655	Lily, gold	0 10 6
1435	Ecu	0 8 4	1656	,, silver	0 1 5

The average value of the mark of silver and that of the livre are shown as follows from the thirteenth century :—

Date	Livres in One Mark of Silver	Francs in One Livre
1280-1300 . . .	3	19.00
1301-50 . . .	4	14.00
1351-1400 . . .	6	9.50
1401-50 . . .	8	7.00
1451-1500 . . .	11	5.20
1501-50 . . .	13	4.50
1551-1600 . . .	18	3.20
1601-50 . . .	28	2.00
1651-1700 . . .	33	1.70
1701-20 . . .	40	1.50
1726-89 . . .	55	1.00

The output of the French Mint in ninety-five years has been as follows :—

Date	Gold, £	Silver, £	Total, £	Government
1795-1815	21,200,000	39,800,000	61,000,000	Bonaparte
1816-30 .	17,600,000	49,900,000	67,500,000	Bourbons
1831-48 .	8,600,000	70,300,000	78,900,000	Louis Philippe
1849-52 .	17,000,000	18,400,000	35,400,000	Republic
1853-70 .	246,000,000	25,200,000	271,200,000	Napoleon III.
1871-89 .	40,100,000	17,200,000	57,300,000	Republic
95 years .	350,500,000	220,800,000	571,300,000	...

The amount of currency at various dates was estimated as follows :—

Year	Gold, £	Silver, £	Paper, £	Total, £
1805	3,000,000	99,000,000	2,000,000	104,000,000
1840	4,000,000	111,000,000	9,000,000	124,000,000
1889	178,000,000	150,000,000	115,000,000	443,000,000

Paper-money was first issued by John Law: the amount of his notes in 1719 reached 3000 million livres, or about 120 millions sterling.

The issue of assignats under the first Republic reached its maximum in 1790, namely, 9000 millions, or about 360 millions sterling. They fell to less than one-hundredth part of their nominal value: thus, a pair of boots cost 7500, and a pound of butter 750 of these notes.

The currency of the Bank of France in 1883 was as follows:—

Notes, Francs					Number	Amount, £
5	.	.	.	.	175,000	35,000
20	.	.	.	.	198,000	158,000
25	.	.	.	.	28,000	28,000
50	.	.	.	.	4,725,000	9,450,000
100	.	.	.	.	10,812,000	43,248,000
200	.	.	.	.	3,000	24,000
500	.	.	.	.	625,000	12,496,000
1,000	.	.	.	.	1,263,300	50,532,000
5,000	.	.	.	.	5	1,000
Total	.	.			17,829,305	115,972,000

GERMANY

On the reconstitution of the German Empire the currency was remodelled, and the following amounts of coin issued from the Mint:—

Period	Gold	Silver	Nickel, &c.	Total
	£	£	£	£
1872–80	87,400,000	21,600,000	2,300,000	111,300,000
1881–89	34,100,000	1,600,000	...	35,700,000
18 years	121,500,000	23,200,000	2,300,000	147,000,000

The total currency in 1889 was approximately thus:—

	£
Gold	122,000,000
Silver	45,000,000
Bank-notes	64,300,000
Treasury notes	6,500,000
Total . .	237,800,000

The above, however, includes 22 millions sterling of old silver money no longer in circulation.

SCANDINAVIA

The total currency may be summed up thus:—

	Sweden	Norway	Denmark	Total
	£	£	£	£
Gold . . .	2,800,000	900,000	1,900,000	5,600,000
Silver . . .	900,000	300,000	1,000,000	2,200,000
Bank-notes .	6,200,000	2,400,000	4,400,000	13,000,000
Total . .	9,900,000	3,600,000	7,300,000	20,800,000

RUSSIA

The Mint issued in forty years down to 1890 as follows:—

				Tons	Value, £
Gold .	.	.	.	1,102	154,100,000
Silver	.	.	.	2,580	23,500,000
Total	.	.		3,682	177,600,000

Notwithstanding the Siberian gold mines, which have produced 1500 tons of gold, worth 210 millions sterling, since 1820, Russia has been a prey to inconvertible notes.

These are the result of unscrupulous finances, the Government printing millions of roubles at will. The following table shows the issue:—

Year	Issue, Millions	Value, Pence	Year	Issue, Millions	Value, Pence
1774	20	38	1843	600	12
1786	100	36	1844	180	35
1796	160	24	1850	310	33
1800	210	18	1860	690	30
1810	580	12	1870	720	28
1817	870	9	1880	1,180	24
1823	605	10	1888	1,046	22

The conversion of 1843 consisted in calling in the old notes, and giving 30 new roubles for 100 old ones. The currency rose in 1890 to 26d. the paper rouble.

AUSTRIA

This country, like Russia, although producing gold, has been afflicted with inconvertible currency owing to reckless issues of paper-money. The amounts and the rate of exchange were approximately as follows:—

Date	Currency, Million Florins	Exchange, Pence	Gold Premium per Cent.
1788	20	24	...
1802	237	10	140
1811	1,060	4	500
1812	212	24	...
1816	639	6	300
1838	200	10	140
1875	635	20	20
1889	762	20	20

In 1811, the Empire being bankrupt, the notes were "converted," the holders getting one new note for five old ones, that is, losing 80 per cent. In 1816 the new notes had fallen to 25 per cent. of their nominal value, and a second conversion was made, holders getting two new notes for seven old ones. Thus the holders of 100 florins of currency in 1810 found themselves with six florins in 1817.

The value of the currency in the last twenty-two years has been as follows:—

Period				Florin, Pence	Gold Premium per Cent.
1867–70	.	.	.	19.7	22
1871–75	.	.	.	21.2	13
1876–80	.	.	.	20.2	19
1881–89	.	.	.	19.5	23

The paper-money in 1889 was as follows:—

	Florins	£ Nominal
Bank issue . . .	435,000,000	43,500,000
Treasury notes . .	327,000,000	32,700,000
Total . .	762,000,000	76,200,000

The current of bullion during twenty-five years was as follows:—

Period			Imported, £	Exported, £
1863–70 .	.	.	23,500,000	27,000,000
1871–80 .	.	.	35,300,000	26,200,000
1881–87 .	.	.	10,300,000	6,500,000
25 years .	.	.	69,100,000	59,700,000

The Hungarian Mint turned out in twenty years as follows :—

Period	Gold, £	Silver, £	Total, £
1867–80 . . .	3,100,000	7,000,000	10,100,000
1881–86 . . .	1,500,000	2,900,000	4,400,000
20 years . . .	4,600,000	9,900,000	14,500,000

The total coinage of the Empire from 1850 to 1890 was as follows :—

		Tons	Value, £
Gold		137	19,200,000
Silver . . .		5,360	48,200,000
Total . . .		...	67,400,000

ITALY

In consequence of the war with Austria in 1866, forced currency was given by the Government to Treasury notes and those of six chartered banks, with the following results :—

Year	Aggregate Issue, £	Specie Reserve, £	Gold, Premium per Cent.
1870	22,000,000	...	...
1874	35,000,000	...	13
1877	37,600,000	3,000,000	10
1880	65,000,000	...	10
1885	51,000,000	25,000,000	0
1888	56,800,000	11,100,000	0

The currency in December 1884 was composed thus :—

Note, Lire	Number	Value, Lire	£ Sterling
½ . . .	7,600,000	3,800,000	152,000
1 . . .	33,300,000	33,300,000	1,332,000
2 . . .	27,300,000	54,600,000	2,184,000
5 . . .	35,400,000	177,000,000	7,080,000
10 . . .	23,500,000	235,000,000	9,400,000
20 . . .	2,160,000	43,200,000	1,700,000
100 . . .	525,000	52,500,000	2,100,000
250 . . .	266,000	66,500,000	2,660,000
1,000 . . .	127,000	127,000,000	5,080,000
Total .	130,178,000	792,900,000	31,688,000

In 1888 the total paper issue was :—

					£
Treasury notes .	.	.	.	.	13,800,000
Bank-notes .	.	.	.	.	43,000,000
Total	.	.	.	.	56,800,000

Italy resumed specie payments on April 12, 1883, after a suspension of sixteen years. The total of gold and silver minted in forty years to 1890 was as follows :—

		Tons	Value, £
Gold		123	17,200,000
Silver		2,530	22,800,000
Total . .		...	40,000,000

BELGIUM

The Mint returns for fifty-eight years show as follows :—

Period	Gold, £	Silver, £	Total, £
1832–60 . .	600,000	6,400,000	7,000,000
1861–70 . .	7,000,000	8,100,000	15,100,000
1871–80 . .	16,000,000	7,400,000	23,400,000
1881–89 . .	400,000	300,000	700,000
58 years . .	24,000,000	22,200,000	46,200,000

Copper and nickel money were also issued to £640,000 worth.

HOLLAND

The total currency in 1889 was as follows :—

				£	In Bank, £
Gold .	.	.	.	5,000,000	2,000,000
Silver	.	.	.	13,000,000	5,000,000
Bank-notes	.	.	.	17,300,000	...
Treasury notes .	.	.	1,000,000	...
Total	.	.		36,300,000	...

The coinage of forty years down to 1890 was as follows :—

				Tons	Value, £
Gold .	.	.	.	48	6,700,000
Silver	.	.	.	3,290	29,700,000
Total	.	.		...	36,400,000

SPAIN AND PORTUGAL

In 1888 the currency of these kingdoms was estimated thus :—

		Spain, £	Portugal, £	Total, £
Gold .	.	19,000,000	9,000,000	28,000,000
Silver .	.	24,000,000	2,000,000	26,000,000
Bank-notes .	.	29,000,000	1,300,000	30,300,000
Total	.	72,000,000	12,300,000	84,300,000

The total coinage from 1850 to 1881 was :—

		Gold, £	Silver, £	Total, £
Spain .	.	17,000,000	10,000,000	27,000,000
Portugal	.	13,000,000	2,000,000	15,000,000
Total	.	30,000,000	12,000,000	42,000,000

UNITED STATES

The currency, according to American writers, was estimated at various dates thus :—

Year	Coin, £	Paper, £	Total, £
1820 . .	7,400,000	9,400,000	16,800,000
1849 . .	29,300,000	25,000,000	54,300,000
1854 . .	50,900,000	37,500,000	88,400,000
1880 . .	104,000,000	153,000,000	257,000,000
1889 . .	228,000,000	208,000,000	436,000,000

The components in 1880 and 1889 were as follows in American currency :—

		Millions of Dollars					
		Treasury		Banks and Public		Total	
		1880	1889	1880	1889	1880	1889
Gold .	.	126	304	226	376	352	680
Silver .	.	74	315	75	106	149	421
Bank-notes	.	7	4	338	207	345	211
Treasury notes .		40	89	349	699	389	788
Total	.	247	712	988	1,388	1,235	2,100

The above may be converted into English money at $4.80 per £. The output of the Mint, computed in £ sterling, was as follows :—

Period	Gold, £	Silver, £	Total, £
1792–1820	1,300,000	2,200,000	3,500,000
1821–40 .	1,900,000	8,900,000	10,800,000
1841–50 .	19,800,000	4,500,000	24,300,000
1851–60 .	66,000,000	9,300,000	75,300,000
1861–70 .	60,400,000	4,600,000	65,000,000
1871–80 .	85,200,000	35,600,000	120,800,000
1881–89 .	73,200,000	58,900,000	132,100,000
98 years .	307,800,000	124,000,000	431,800,000

The Silver Law, passed by Congress in July 1890, obliges Government to coin $4,500,000 of silver monthly, equal to £11,300,000 sterling per annum.

The war for the Union in 1861 caused a suspension of specie payments, which lasted nineteen years. The quotations of paper-money were as follows :—

Year	Value compared with Gold			Value of $100
	Maximum	Minimum	Average	
				£ s. d.
1862 . .	98	75	88	18 6 0
1863 . .	79	62	69	14 6 6
1864 . .	64	39	49	10 4 0
1865 . .	74	46	64	13 6 4
1866 . .	79	66	71	14 15 0
1867 . .	74	70	72	14 19 0
1868 . .	74	69	72	14 19 0
1869 . .	82	72	75	15 12 0
1870 . .	90	82	87	18 2 0
1871 . .	92	87	90	18 14 0
1872 . .	92	87	89	18 10 0
1873 . .	92	85	88	18 6 0
1874 . .	91	88	90	18 14 0
1875 . .	89	85	87	18 2 0
1876 . .	93	87	90	18 14 0
1877 . .	97	94	96	19 19 0
1878 . .	...	...	98	20 7 0
1879 . .	100	100	100	20 16 0

The average for ten years ending 1870 was 75, and for the following decade 93.

PERSIA

The currency has been depreciated since 1875 by increasing the alloy in gold and silver coins. The kran has now but 71 grains of silver, against 83 in the year 1875, and the alloy of gold has been raised from 109 to 115 per 1000. The kran has fallen from a value of 10d. to 6½d., and the gold is at 45 per cent. premium. Baron Reuter has a concession to issue bank-notes up to £800,000, with bullion reserve 50 per cent.

JAPAN

In 1888 the currency was as follows :—

	£
Gold	19,000,000
Silver	9,000,000
Bank-notes	15,500,000
Treasury notes	10,500,000
Total . .	54,000,000

Paper-money is at a discount, gold being 25 per cent. premium.

ARGENTINA

The currency consists wholly of paper-money notes, ranging from one halfpenny up to £20 sterling. The halfpenny notes are nominally for 5 cents, the dollar being worth about 12d. In December 1884 the paper dollar

was worth 48d., but specie payments were suspended in January 1885, and the quotations since then have been :—

	Value of Dollar, Pence					
	1885	1886	1887	1888	1889	1890
January . . .	39.5	33.2	38.5	33.0	31.8	21.3
February . . .	37.5	32.6	37.2	32.2	31.0	21.3
March . . .	36.2	31.5	36.3	31.8	30.2	19.0
April	32.8	31.0	35.6	33.0	30.2	17.8
May	35.8	31.0	35.0	32.8	30.4	20.4
June	36.8	32.2	36.1	32.0	29.2	17.0
July	36.5	35.0	36.5	31.1	28.1	16.5
August . . .	33.5	36.8	37.2	32.0	27.4	19.2
September . .	34.0	40.1	36.0	32.5	23.7	19.0
October . . .	33.2	41.0	33.6	32.3	22.7	18.0
November . .	32.4	37.5	33.0	33.2	21.8	17 0
December . . .	33.5	37.0	32.9	33.6	20.4	15.5
Average . . .	35.0	34.2	36.0	32.5	27.0	18.5

MONUMENTS

According to Strabo, the Tower of Babel was 600 feet high. The following are remarkable monuments and obelisks :—

Name	Locality	Height, Feet	Weight, Tons
Wellington .	Dublin . . .	205	1,000
Monument .	London . .	202	1,800
Nelson . .	London . .	177	1,500
Nelson . . .	Dublin . .	125	1,000
*Lateran . .	Rome . . .	105	445
Alexander .	St. Petersburg	84	200
*Vatican . .	Rome . . .	83	220
*Luxor . . .	Paris . . .	76	240
*Cleopatra .	London . .	68	140
*Meidan . .	Constantinople	50	60
*Quirinal . .	Rome . . .	48	60

In the foregoing table those marked with an asterisk are Egyptian monoliths, or real obelisks, of extreme antiquity. There is also a fine obelisk at Heliopolis, still standing. The second of Cleopatra's Needles has been removed to the United States, for erection in New York.

The height of certain edifices is as follows :—

	Feet		Feet
Eiffel Tower, Paris .	990	Freyburg Cathedral .	412
Cologne Cathedral . .	528	Salisbury Cathedral .	406
St. Nicholas, Hamburg	475	Florence Cathedral .	393
St. Peter's, Rome . .	472	St. Paul's, London .	366
Strasburg Cathedral .	468	Milan Cathedral . .	360
Pyramid of Cheops .	452	Brussels Townhall .	355
St. Stephen's, Vienna .	445	Invalides, Paris . .	346
Amiens Cathedral . .	440		

The diameter of the following domes and arches is :—

	Feet		Feet
Milan Cathedral . . .	55	St. Paul's, London . .	112
Pantheon, Paris . . .	67	St. Sophia	115
Invalides, Paris . . .	80	Sta. Maria, Florence .	139
Achmet's Mosque . .	92	St. Peter's, Rome . . .	139

The cost of certain buildings is stated to have been :—

Opera House, Paris . . .	£1,600,000
Law Courts, Brussels . . .	1,200,000
Cathedral, Cologne . . .	2,100,000
Parliament, Westminster . .	3,500,000
St. Peter's, Rome . . .	3,500,000

The Great Pyramid of Cheops has 85 million cubic feet of material, the Wall of China 6350 millions. The Pyramids are supposed to have been built 1500 B.C., the Wall of China 202 B.C. Next in antiquity are the Round Towers of Ireland, probably of the 6th century or earlier: there are 45, the highest at Kilmacduagh, Galway, 108 ft., diameter 18½ ft.

MOORS

The Moors built in Cordoba 4437 mosques, 4300 towers, 900 public baths, 28 squares, 80,400 shops, 60,000 palaces and hotels, and 213,000 houses. At Granada they built 1030 towers and 70,000 houses.

MORTGAGES

United Kingdom.—Lord Reay estimates the mortgages at 58 per cent. in England of the value of real estate. In Ireland, according to Commissioner Greene, they amount to 40 per cent., say 120 millions sterling.

France.—New mortgages average 30 millions sterling per annum : on December 31, 1876, all existing mortgages were officially estimated at 575 millions sterling.

Germany.—In 1870 the mortgages in Prussia reached 190, and in all Germany 273, millions sterling. Professor Meitzen, however, considers that 41 per cent. of all real estate in the Empire is mortgaged. An official return for 1883 shows that the houses of Berlin were mortgaged for 105 millions sterling, being 67 per cent. of their assessed value.

Russia.—Mortgages on land are known to reach 148 millions sterling, but probably amount to much more.

Austria.—In 1860 the amount on mortgage was 165 millions sterling, average interest 5 per cent. : in 1884 the amount was 320 millions sterling. The new mortgages registered in the years 1876 and 1884 were :—

	1876	1884
	£	£
Austria . . .	4,400,000	2,400,000
Hungary . . .	5,600,000	6,400,000
Total . .	10,000,000	8,800,000

Belgium.—The registration of mortgages was as follows :—

Year						Amount, £
1860	.	.	.	.	.	3,400,000
1870	.	.	.	.	.	4,400,000
1886	.	.	.	.	.	8,200,000

Holland.—In 1883 the existing mortgages were 77 millions sterling, as against £37,500,000 in 1869.

Spain.—Estimated amount, 172 millions sterling ; annual average of new mortgages, £8,500,000.

Italy.—The total reaches 580 millions sterling, but of this sum only 288 millions bear interest.

Norway.—The amount of mortgage bonds is £4,600,000 sterling.

New Zealand.—New mortgages average £9,000,000 per annum ; releases, one-third of that amount.

Australia.—The colony of New South Wales had new mortgages for 113 millions sterling between 1876 and 1888.

Argentina.—Cedulas or mortgage-bonds in 1890 amounted to 450 million dollars, nominally 90 millions sterling.

Egypt.—New mortgages average £1,300,000 per annum.

Canada.—Sir R. Cartwright ascertained in 1889 that Ontario had mortgages to the amount of 42 millions sterling.

United States.—Commissioner Loring summed up the mortgages during thirty-eight years in one of the Western States, and found :—

No. of mortgages	.	.	.	200,000
Amount	.	.	.	£36,000,000
Paid off	.	.	.	20,400,000
Still due	.	.	.	15,600,000

The name of the State is not given.

MOUNTAINS

Some of the most remarkable are :—

	Feet		Feet
Gibraltar . .	1,432	Morrison . .	12,847
Snowdon . .	3,571	Fuziyama . .	14,180
Vesuvius. .	3,978	Big Horn . .	14,430
Ben Nevis .	4,358	Blanc . .	15,781
Puy-Dome .	4,750	Ararat . .	17,266
Olympus. .	6,500	Orizaba . .	17,371
Sinai . .	7,500	Kaa Mowna .	18,400
Kosciusko .	7,176	Elburz . .	18,514
Ankaratra .	8,887	Kilimanjaro .	18,800
Lebanon .	9,520	Cotopaxi .	19,620
Etna . .	10,963	Wrangel. .	20,000
St. Bernard .	11,006	Schopenhauer .	20,073
Petermann .	11,400	Chimborazo .	21,440
Egmont . .	11,433	Illimani . .	24,450
Teneriffe. .	12,036	Sorata . .	25,250
Cook . .	12,400	Everest . .	29,002

Everest is the highest of the Himalayas, Schopenhauer is in New Guinea, Wrangel in North America, Morrison in Formosa, Petermann in Greenland, Ankaratra in Madagascar, and Kosciusko in Australia. The greatest height attained by Humboldt was 19,510 feet, in the Andes, but Mr. Whymper, in 1880, ascended Cotopaxi to 19,620 feet, and Chimborazo to 20,545 feet, and W. Graham in 1883 the Kabru peak of the Himalayas to 23,500 feet, the greatest height yet attained by any individual. The passes of the Alps and the Andes are :—

Alps	Feet over Sea	*Andes*	Feet over Sea
St. Gothard .	6,848	Bariloche .	2,770
Simplon. .	6,616	Antuco . .	6,930
St. Bernard .	8,158	Planchon .	8,225
Little St. Bernard .	6,576	Uspallata .	12,870
Mont Cenis .	6,818	Patos . .	13,200
Madelaine .	6,584	Humahuaca .	14,060
Col di Tenda .	5,925	Portillo . .	13,860

There are carriage-roads over all the above Alpine passes except the St. Gothard and St. Bernard. There are none over the Andes, but a railway is in construction over the Uspallata Pass.

MUNIFICENCE

Donor			£	Locality	Object
Astor	.	.	100,000	New York	Library
Baird	.	.	500,000	Aberdeen	Church
Berridge.	.	.	200,000	London	Schools
Cooper .	.	.	160,000	New York	Schools
Crossley .	.	.	100,000	Yorkshire	Orphanage
Day	.	.	100,000	London	Blind
Firth	.	.	100,000	Sheffield	Asylum
Galignani	.	.	100,000	Paris	Asylum
Galliera .	.	.	400,000	Genoa	Hospitals
Gardner .	.	.	300,000	London	Blind
Guinness	.	.	150,000	Dublin	Church
Guinness	.	.	200,000	London	Lodging-house
Guy	.	.	240,000	London	Hospital
Holloway	.	.	350,000	London	Hospital
Jeejeebhoy	.	.	500,000	Bombay	Schools
Lick	.	.	200,000	California	Observatory
Mason .	.	.	430,000	Birmingham	Orphanage
M'Calmont	.	.	100,000	London	Hospital
M'Kellar	.	.	100,000	London	Schools
Peabody.	.	.	500,000	London	Lodging-house
Quinn .	.	.	200,000	Newry	Aged
Robinson	.	.	100,000	New York	Schools
Ross	.	.	200,000	Glasgow	Hospitals
Rossini .	.	.	100,000	Paris	Asylum
Rowe .	.	.	120,000	Dublin	Church
Rylands .	.	.	200,000	Birmingham	Asylum
Salt	.	.	100,000	Yorkshire	Hospital
Stewart .	.	.	150,000	New York	Hospital
Sturge .	.	.	300,000	London	Asylum
Urquijo .	.	.	180,000	Madrid	Orphanage
Vanderbilt	.	.	200,000	New York	Asylum
Whitworth	.	.	100,000	Manchester	Schools

MURDER

According to Professor Bodio (see p. 162), the number of criminals tried for murder in the years 1876–84 averaged as follows :—

	Number Yearly	Per Million Population
United Kingdom .	450	12
France . . .	816	23
Germany . . .	602	14
Hungary . . .	1,682	107
Italy	3,712	134
Spain	1,807	105

MUSIC

In 1890, at an auction in London, the following prices were obtained for copyrights of songs :—

Song	Composer	Price, £
Wild Winds	Mattei	611
In the Gloaming . . .	Lady Hill	286
The Old Way . . .	Roeckel	253
Jolly Smiths	Leslie	265
Kathleen Mavourneen . .	Crouch	400

The price of " Wild Winds " (Odi tu) is the highest on record.

N.

NAMES

The ratio in England per 1000 shows :—

Mary 68	Thomas . . . 39	James . . . 31	Joseph 18
William 66	George . . . 36	Charles . . . 23	Jane 17
John 62	Sarah . . . 36	Henry . . . 21	Ellen 16
Eliza 61	Anne . . . 33	Alice . . . 19	

NATIONS

	Square Miles	Population	Steam-Power	Millions £ Sterling		
				Revenue	Commerce	Wealth
United Kingdom . . .	121,000	38,000,000	9,200,000	89	740	9,400
France	201,000	38,500,000	4,520,000	122	311	8,598
Germany	212,000	48,000,000	6,200,000	155	367	6,437
Russia	2,262,000	92,000,000	2,240,000	89	118	5,089
Austria	269,000	40,000,000	2,150,000	75	92	3,855
Italy	114,000	30,000,000	830,000	72	94	2,963
Spain	183,000	18,000,000	740,000	35	59	2,516
Portugal	37,000	4,700,000	80,000	8	18	408
Sweden	171,000	4,800,000	300,000	5	30	637
Norway	122,000	2,000,000	180,000	2	16	243
Denmark	15,000	2,000,000	150,000	3	26	404
Holland	21,000	4,500,000	340,000	10	199	980
Belgium	11,000	6,100,000	810,000	13	111	1,007
Switzerland	16,000	3,000,000	290,000	3	60	494
Greece	20,000	2,000,000	} 600,000	3	7	300
Roumania	48,000	5,500,000		6	23	593
Servia	21,000	2,000,000		2	4	217
Bulgaria	39,000	3,000,000		3	6	205
Turkey	67,000	4,700,000		16	33	593
Europe	3,950,000	348,300,000	28,630,000	711	2,314	44,939
United States	3,604,000	62,500,000	14,400,000	81	320	12,824
Canada	3,372,000	5,100,000	...	8	42	980
Mexico	751,000	10,500,000	...	5	20	638
Central America . . .	169,000	3,000,000	...	2	7	...
Venezuela	567,000	2,500,000	...	1	6	...
Peru	405,000	3,000,000	...	1	3	...
Ecuador	248,000	1,100,000	...	1	4	...
Columbia	331,000	4,000,000	...	3	4	...
Chili	257,000	2,600,000	...	5	14	...
Bolivia	472,000	2,300,000	...	1	2	...
Argentina	1,095,000	3,600,000	...	5	27	509
Uruguay	72,000	600,000	...	2	12	100
Brazil	3,288,000	12,400,000	...	14	41	...
Australia	3,104,000	3,700,000	...	28	130	1,373
South Africa	230,000	1,900,000	...	4	19	135
Algeria	123,000	3,800,000	...	2	17	...
Egypt	494,000	6,800,000	...	10	19	...
India	870,000	215,000,000	...	83	131	...
Siberia	6,179,000	9,400,000	...	...	8	...
China	3,925,000	320,000,000	...	26	49	...
Persia	636,000	7,600,000	...	2	8	...
Java	51,000	18,000,000	...	10	30	...
Japan	148,000	38,000,000	...	13	22	...
Total . . .	34,341,000	1,085,700,000	50,150,000	1,018	3,249	...

NAVY

The following is a table of the principal navies :—

	1810		1840		1889	
	Ships	Guns	Ships	Guns	Ships	Guns
G. Britain .	450	24,800	392	16,310	373	1,460
France . .	212	6,000	146	7,600	348	1,450
Germany .	...	...	...	...	101	519
Russia . .	346	4,450	83	5,460	391	942
Austria . .	...	...	...	...	106	295
Italy . . .	36	200	...	...	140	318
Spain . .	301	8,000	57	1,200	135	492
Holland .	76	1,600	30	1,640	147	560
Turkey . .	42	1,700	33	2,440	90	200
U. States .	158	526	60	3,250	75	542
Various . .	60	1,300	57	2,779	385	1,605
Total .	1,681	48,576	858	40,679	2,291	8,383

The average of guns to a vessel was 29 in 1810, rising to 46 in 1840, and declining to less than 4 in 1889. Modern naval warfare has been changed by the invention of armour-plated ships, the first of which were built for the Crimean war, 4-inch plates perfectly shot-proof, in 1853. The *Merrimacs* and *Monitors* of the United States in 1862 marked a great advance. Finally, the Italians used plates 36 inches thick for the *Lepanto*. The ironclad fleets of the world stand at present approximately as follows :—

Name	Vessels	Tons	Max. Plating, Inches	Guns	Tonnage of Guns
Great Britain	66	460,000	24	610	9,100
France . .	52	310,000	22	470	6,500
Germany .	27	104,000	12	160	2,200
Russia . .	40	160,000	16	421	4,600
Austria . .	10	55,000	14	137	1,500
Italy . . .	14	82,000	36	110	2,200
Spain . .	13	35,000	20	254	900
Portugal .	1	2,000	8	3	30
Sweden . .	15	8,000	12	24	90
Norway . .	4	2,000	...	12	50
Denmark .	8	25,000	12	107	900
Holland . .	24	45,000	8	72	800
Greece . .	4	7,000	...	24	...
Turkey . .	15	61,000	12	134	1,340
United States	13	40,000	12	74	...
Brazil . .	12	15,000	12	60	...
Argentina .	3	8,000	9	15	...
Chili . . .	3	9,000	9	22	220
China . .	9	38,000	14	50	...
Japan . .	1	4,000	9	6	60
Total .	334	1,470,000	36	2,765	30,490

The average cost of building ironclads has been, per ton : British £48, French £55, Italian £57, German £60. Including guns and equipment, an ordinary ironclad now costs £80 per ton. The largest war-vessels now are :—

Name	Flag	Tons	Horse-Power
Italia	Italian . .	13,900	18,000
Trafalgar . . .	British . .	12,000	12,000
Formidable . .	French . .	11,400	8,300
Catherine . . .	Russian . .	10,200	9,000
Pelayo	Spanish . .	10,000	8,000
Wilhelm . . .	German . .	9,800	8,000
Mesoudivé. . .	Turkish . .	8,800	6,800
Tegethoff . . .	Austrian . .	7,400	5,000
Ting	Chinese . .	7,300	6,000
Maine	United States	6,600	8,600
Heligoland . .	Danish . .	5,400	4,000
Koenig. . . .	Holland . .	5,400	4,500

The following comparison of navies was published in the *Daily News*, 1890 :—

	Great Britain	France	Germany	Russia	Italy
Sea-going ironclads .	56	33	13	22	21
Cruisers (16 knots) . .	28	17	7	2	3
Coast ironclads . . .	6	21	12	13	...
Gunboats	95	45	12	36	15
Various	185	190	131	188	124
Total . . .	370	306	175	261	163

The same paper says : "In ships we are well ahead of any competitor. It is in the matter of guns that our weakness lies. We have afloat or ready to go afloat 1065 modern heavy guns ; France has 1447, Russia has 423, Italy has 180, and Germany has 508. When all our war-ships are armed, we shall have afloat of guns that can pierce 15 in. of armour and upwards 104, while France will have 124, Russia 38, Italy 40, and Germany 61."

The torpedo fleets of the various flags are as follows :—

Great Britain . . 165	Austria 42		
France . . . 175	Holland 31		
Germany . . . 135	Brazil 18		
Russia . . . 185	Chili 25		
Italy . . . 116	Turkey 52		
Spain . . . 26	China 31		
Sweden . . . 19	Portugal . . . 6		
Denmark . . . 42	Argentina . . . 9		

The number of seamen and annual cost of the navies are :—

	Men	Annual Expenditure, £	Per Man, £
Great Britain. .	65,000	13,700,000	211
France . . .	54,000	9,000,000	165
Germany . .	16,600	2,000,000	120
Russia . . .	29,000	4,000,000	140
Austria . . .	8,500	900,000	106
Italy . . .	13,000	5,000,000	386
Spain . . .	14,000	1,600,000	114
Holland . . .	8,000	1,100,000	138
Turkey . . .	39,500	800,000	20
United States .	10,000	3,000,000	300
Total .	257,600	41,100,000	160

GREAT BRITAIN

The statistics of the Royal Navy may be summed up as follows :—

Year	Vessels	Tons	Guns	Men	Cost per Annum, £
1603 . .	42	17,000	...	...	180,000
1685 . .	179	104,000	6,930	10,000	390,000
1760 . .	325	321,000	10,600	51,000	5,611,000
1803 . .	450	461,000	24,800	180,000	12,037,000
1850 . .	585	570,000	17,200	48,000	6,438,000
1890 . .	373	680,000	1,460	65,000	13,700,000

When Philip II. sent the Armada in 1588 for the conquest of England it comprised :—

Ships	. . .	132	Seamen .	. .	10,854
Cannon	. . .	3,165	Soldiers .	. .	23,200

The British fleet under Lord Howard, supported by Drake and Hawkins, consisted of :—

	Royal Navy	Vessels Hired	Total
Ships . . .	41	135	176
Tonnage . .	16,000	18,500	34,500
Seamen . .	8,200	6,600	14,800

The Spaniards lost 35 ships and 13,600 men. During the wars with Bonaparte, according to Haydn, the British navy captured or destroyed the following :—

Ships of the line	.	207	French	.	.	683
Frigates .	.	351	Spanish	.	.	213
Corvettes .	.	552	Various	.	.	214
Total	.	1,110	Total	.	1,110

The above is exclusive of 1396 brigs and small vessels.

In 1888 the Channel Fleet consisted as follows :—

	Tons	Guns	Broadsides, Lbs.	Men
Inflexible . .	11,880	4	3,400	460
Northumberland .	10,780	27	2,630	710
Agincourt . .	10,690	17	2,150	710
Benbow . .	10,600	12	2,300	500
Rodney . .	10,300	10	2,300	500
64 others . .	185,750	354	32,720	12,120
Total . .	240,000	424	45,500	15,100

The Channel Fleet represents nearly one-third of the strength of the British navy.

The strength of the navy in 1889 was as follows :—

	Number	In Commission	
		Number	Guns
Ironclads . . .	66	32	310
Steamers . . .	292	172	790
Sailing . . .	212	63	380
Torpedo-boats . .	146	13	...
Total . .	716	280	1,480

The navy counts 65,000 seamen, including 14,000 marines and 5300 coastguards. In fifteen years ending 1880 the cost of vessels built was as follows :—

Built by	Tons			Cost, £		
	Iron	Wooden	Total	Iron	Wooden	Total
Government	123,000	85,000	208,000	5,466,000	3,964,000	9,430,000
Contractors	55,000	41,000	96,000	2,709,000	2,321,000	5,030,000
Total . .	178,000	126,000	304,000	8,175,000	6,285,000	14,460,000

The cost of construction per ton of displacement was less in Government yards, but less per ton of hull in contractors' yards, viz. :—

	Dockyard			Contractors'		
	£	s.	d.	£	s.	d.
Per ton displacement .	45	7	0	52	8	0
Per ton of hull . . .	43	8	0	41	12	0

The cost of French ironclads built in State dockyards has been 30 per cent. more than those built by contractors. Lord Brassey gives the cost of vessels built for the British and French fighting navies since 1864 thus :—

Period	England, £	France, £
1864-70 . . .	9,900,000	5,700,000
1871-80 . . .	15,700,000	9,900,000
1881-90 . . .	24,200,000	16,100,000
27 years . . .	49,800,000	31,700,000

The cost of the effective ships afloat has been as follows :—

	Number	£
Ironclads	66	24,000,000
Torpedo-boats . . .	146	1,500,000
Steamers, &c. . . .	161	11,100,000
Total . .	373	36,600,000

There are in construction 11 ironclads and 128 other vessels, to be completed before 1894, at a cost of 22 millions sterling. In 1889 there were 26 war-vessels launched, besides 23 new torpedo-boats, and the most remarkable were :—

Name	Tons	Horse-Power	Cost, £	Speed, Knots per Hour
Blake . . .	9,000	20,000	440,000	22
Vulcan . . .	6,600	12,000	300,000	20
Barham . .	1,800	6,000	100,000	19
Blanche . .	1,600	3,000	100,000	16

The *Blake* is 400 ft. long, 65 ft. beam, and carries two 24-ton guns and 10 smaller : the hull cost £213,000, the engines £134,000, the guns £25,000 (£310 per ton), and the fittings £68,000. Lord Armstrong, comparing the new ship *Victoria* with Nelson's ship *Victory*, says :— "Nelson's heaviest shot was 68 lbs., but the *Victoria's* weighs 1800 lbs. ; his broadside consumed 325 lbs. of powder, that of the *Victoria* 3000 lbs. He required one man to every 4 tons, but now we can do with one man for 17 tons." A first-class ironclad, built of steel, has this weight :—

						Tons
Hull .	.	.	.	.	.	3,400
Plating .	.	.	.	.	.	2,800
Machinery .	.	.	.	.	.	1,400
Guns, &c. .	.	.	.	.	.	1,100
Coal, &c. .	.	.	.	.	.	1,370
Total	.	.	10,070

FRANCE

The strength at various dates has been as follows :—

Year	Vessels	Guns	Men
1780 . . .	266	13.300	78,000
1810 . . .	212	6,000	94,000
1840 . . .	146	7,600	24,500
1868 . . .	480	2,750	43,100
1889 . . .	348	1,450	54,000

The expenditure has averaged yearly approximately thus :—

Period						£
1831-50 .	.	.	.	.	.	3,400,000
1851-70 .	.	.	.	.	.	5,700,000
1871-88 .	.	.	.	.	.	9,400,000

In 1889 the navy comprised 52 ironclads and 296 smaller vessels, the total valued at £20,100,000, and

carrying 29,000 blue-jackets, 25,000 marines, and 1450 guns. Some of the heaviest vessels are :—

	Tons	Armour, Inches	Guns	Horse-Power	Knots per Hour
Formidable . .	11,400	22	15	8,300	15
Duperrè . .	10,500	22	19	8,000	15
Baudin . . .	11,200	22	15	8,000	15
Duquesne . .	5,700	...	21	8,000	17
Courbet . .	9,500	15	14	8,000	15

In 1882 the following comparative table of the French and British ironclad fleets was published :—

	Vessels	Tonnage of Guns	Per Ship
British . . .	51	7,030	138
French . . .	59	5,960	101

In 1869 the largest vessel in the French navy was the *Magenta*, 1000 horse-power, being one-eighth of that of the present first-class ironclads.

GERMANY

In 1888 the fleet was composed thus :—

	Number	Guns	Tons	Horse-Power	Men
Ironclads . .	27	160	104,000	84,000	7,300
Frigates . .	9	122	28,000	28,000	3,700
Corvettes, &c. .	65	237	50,000	56,000	5,600
Total .	101	519	182,000	168,000	16,600

The heaviest ships are the following :—

	Tons	Horse-Power	Guns	Armour, Inches
Wilhelm . .	9,800	8,000	29	12
Kaiser . .	7,700	8,000	15	10

The navy costs £2,000,000 per annum.

RUSSIA

The strength of the Russian navy at various dates was :—

Year					Ships	Guns
1779	.	.	.	.	56	3,400
1791	.	.	.	.	94	5,200
1810	.	.	.	.	346	4,450
1840	.	.	.	.	83	5,400
1868	.	.	.	.	292	3,690
1889	.	.	.	.	391	942

The navy in 1889 was as follows :—

Fleets	Ironclads	Other Vessels	Total
Baltic . .	26	209	235
Black Sea . .	5	67	72
Caspian . . .	9	14	23
Siberian, &c. .	...	61	61
Total . .	40	351	391
	Guns	Tons	Horse-Power
Ironclads . .	421	160,000	17,000
Steamers, &c. .	521	126,000	32,000
Total . .	942	286,000	·49,000

The whole manned by 29,000 officers and men.

The heaviest ships are :—

Name	Tons	Horse-Power	Guns	Armour, Inches	Knots per Hour
Sinope . . .	10,200	9,000	13	16	16
Catherine . .	10,200	9,000	13	16	16

The navy costs £4,000,000 per annum.

HOLLAND

In 1888 the navy comprised 24 ironclads and 123 corvettes and smaller vessels, carrying 560 guns and 8000 men, the heaviest ship being the *King of Holland*, 5400 tons, 4500 horse-power, 8 guns, 8-inch armour, speed 12 knots. The navy costs £1,100,000 a year.

AUSTRIA

The actual strength is as follows :—

	Number	Tons	Horse-Power	Guns	Men
Ironclads . . .	10	55,000	11,000	137	4,000
Corvettes, &c. .	96	69,000	13,000	158	7,000
Total . .	106	124,000	24,000	295	11,000

The heaviest vessels are :—

	Tons	Horse-Power	Guns	Armour, Inches	Knots per Hour
Tegethoff . .	7,400	5,000	6	14	14
Custozza . . .	7,000	4,500	8	9	14

The navy costs £900,000 per annum, and is manned by 8500 men.

ITALY

The navy is composed as follows :—

	Vessels	Guns	Tons	Horse-Power	Men
Ironclads . . .	14	110	82,000	64,000	6,000
Corvettes, &c. .	23	117	34,000	41,000	4,000
Small vessels .	103	91	34,000	35,000	3,000
Total . .	140	318	150,000	140,000	13,000

The heaviest ships are :—

	Tons	Horse-Power	Guns	Armour, Inches	Knots per Hour
Italia . .	13,900	18,000	12	36	18
Lepanto . .	13,600	18,000	12	36	18
Humberto . .	13,300	15,200	12	36	18

There are 17,000 officers and seamen, the navy costing £5,000,000 sterling per annum.

SPAIN

In 1889 the naval strength was as follows :—

	Number	Guns	Horse-Power
Ironclads . . .	13	254	19,000
Other vessels . .	122	238	46,000
Total . .	135	492	65,000

The fleet is manned by 14,000 men. The largest ship is the *Pelayo*, 10,000 tons, 8000 horse-power, armour 20 inches, carrying 17 guns. The navy in 1708 was one of the greatest in Europe, manned by 16,400 seamen.

PORTUGAL

The actual strength is as follows :—

	Number	Guns	Horse-Power
Steam . . .	38	139	20,000
Sail	15	42	...
Total . .	53	181	20,000

There are 3000 seamen. The only ironclad is the *Vasco da Gama*, 2400 tons, 3200 horse-power, 8-inch armour, speed 13 knots. The navy costs £250,000 a year.

SWEDEN

The navy is composed thus :—

	Number	Horse-Power	Guns
Ironclads . . .	15	6,000	24
Corvettes, &c. . .	53	22,000	127
Total . .	68	28,000	151

The heaviest ship is the *Scea*, 12-inch armour, 2900 tons, 6 guns, and 3100 horse-power. The fleet has 4000 seamen, and costs £350,000 a year.

NORWAY

The fleet counts as follows :—

	Number	Horse-Power	Guns
Ironclads . . .	4	1,800	12
Corvettes, &c. . .	17	8,000	157
Small boats . .	27	4,200	23
Total . .	48	14,000	192

They are manned by 1100 men ; naval reserve, 27,000. The cost of the navy is £110,000 a year.

DENMARK

The navy before its destruction by Nelson consisted in 1805 of 35 vessels, carrying 2350 guns. In 1850 it counted 25 vessels with 940 guns. The present strength is :—

	Number	Horse-Power	Guns
Ironclads . . .	8	19,000	107
Corvettes, &c. . .	31	18,000	122
Total . .	39	37,000	229

The heaviest vessel is the *Heligoland*, 12-inch armour, 5400 tons, 4000 horse-power, 5 guns, speed 14 knots. The navy costs £600,000 a year.

GREECE

The actual strength is :—

	Number	Tons	Guns
Ironclads . . .	4	7,000	24
Brigs, &c. . . .	31	...	176
Total . .	35	...	200

The whole is manned by 2900 men. The heaviest ship is the *Olga*, 2000 tons, 6 guns, 10 knots. The navy costs £160,000 a year.

TURKEY

The navy comprises 15 ironclads, 15 corvettes, 60 gunboats, &c., the whole carrying 200 guns, and supposed to be manned by 30,000 blue-jackets, and 9500 marines. The Turkish navy has been repeatedly almost annihilated. At Lepanto in 1571, Ali Pacha's fleet counted 372 vessels, manned by 120,000 men ; that of Don John of Austria, 208 vessels with 80,000 men. The Turks lost 175 captured and 129 sunk or burnt, only 68 escaping. Again, at Navarino in 1827, the English and French destroyed 30 Turkish war-vessels, and in 1853 the Russians at Sinope destroyed an Ottoman fleet of 11 vessels with 4000 men.

At present the heaviest ships are :—

	Tons	Horse-Power	Guns	Armour, Inches	Knots per Hour
Mesoudiyè . .	8,800	6,800	12	12	14
Hamidieh . .	6,500	4,500	9	9	13

The navy costs £800,000 a year.

BRAZIL

The fleet comprises 12 ironclads and 30 war-steamers, carrying 222 guns and 6000 men. The heaviest vessel is the *Jaoarè*, 3500 tons, 2200 horse-power, 4 guns, 12-inch armour. The navy costs £1,100,000 a year.

ARGENTINA

The actual strength is 3 ironclads and 16 gunboats, carrying 58 guns and 1500 men. The *Admiral Brown* is 4200 tons, 5400 horse-power, 8 guns, 9-inch armour. The navy costs £300,000 a year.

CHILI

There are 3 ironclads and 18 smaller vessels, carrying 55 guns and 2000 men. The *Cochrane* is 3500 tons, 2900 horse-power, 9-inch armour, 3 guns, speed 12 knots. A steel ironclad of 6000 tons is in construction.

UNITED STATES

The strength of the navy at various dates was :—

	Vessels	Guns
1812	158	526
1815	276	1,636
1840	60	3,250
1865	684	4,477
1888	75	542

Americans are fairly entitled to claim the invention of ironclad war-vessels. In 1811 Robert Stevens of New Jersey, a youth of twenty-two years, proposed iron-plating for ships, and in 1842 made a contract with the Navy Department for ironclad floating batteries. Ericcson invented turret-ships in 1860 with plates 8-inch thick, carrying a pair of 15-inch guns.

The actual fleet comprises 13 ironclads, 37 corvettes, and 25 small vessels, manned by 8000 blue-jackets, and 2000 marines. The sums spent on the navy have averaged yearly thus :—

Period		£
1801-40 .	. . . . .	700,000
1841-60 .	. . . . .	1,900,000
1861-70 .	. . . . .	7,500,000
1871-80 .	. . . . .	4,000,000
1881-88 .	. . . . .	3,100,000

Congress has recently ordered the construction of 10 ironclads and 18 other vessels. The *Puritan, Maine,* and *Texas* will be each over 6000 tons, 8000 horse-power, 12-inch armour, speed 17 knots. The new corvette *Baltimore*, 10,000 horse-power, goes 20 knots.

JAPAN.

The navy is as follows :—

	Number	Guns	Tons	Horse-Power	Knots
Ironclad . . .	1	6	3,700	3,500	13
Corvettes, &c. .	24	169	35,400	31,000	...
Total . .	25	175	39,100	34,500	...

The vessels are manned by 5000 blue-jackets, and cost £800,000 a year.

CHINA

In 1888 the navy comprised 9 ironclads and 121 small vessels. The heaviest vessels were the *Ting* and *Chen*, each 7300 tons, 6000 horse-power, 14-inch plating, with 4 Krupp guns of 12-inch bore.

NIGHT

The following table shows the longest and shortest nights, according to latitude :—

Latitude	Longest		Shortest	
	Hours	Minutes	Hours	Minutes
5 . . .	12	17	11	43
15 . . .	12	53	11	7
25 . . .	13	34	10	26
35 . . .	14	22	9	38
45 . . .	15	26	8	34
50 . . .	16	9	7	51
55 . . .	17	7	6	53
60 . . .	18	30	5	30
65 . . .	21	10	2	50

At 66½ north or south the midnight sun is visible in summer. The above table is equally true of the length of days.

NOBLES

In Austria-Hungary the number declines, viz. :—

	1840	1865
Austria	140,000	87,000
Hungary	260,000	163,400
Total . .	400,000	250,400

In Spain they are as follows :—

	Grandees	Only Titular	Total
Dukes . .	79	2	81
Marquises . .	60	615	675
Counts . .	60	480	540
Barons . .	4	156	160
Total .	203	1,253	1,456

The British House of Lords comprises 4 princes, 23 dukes, 19 marquises, 139 earls, 32 viscounts, 26 bishops, and 272 barons ; in all, 515 members.

The total nobility of the United Kingdom is as follows :—

	Dukes	Marquises	Earls	Viscounts	Barons	Total
England . .	27	21	120	28	294	490
Scotland . .	8	4	43	5	25	85
Ireland . .	2	11	64	36	64	177
Total .	37	36	227	69	383	752

There are also 26 English bishops who rank as peers.

O.

OCCUPATION

The following table shows approximately the number of persons supported by the principal industries in the several countries :—

	Agriculture	Manufactures	Commerce, &c.	Total
England .	3,435,000	7,313,000	15,226,000	25,974,000
Scotland .	523,000	1,155,000	2,058,000	3,736,000
Ireland . .	2,562,000	640,000	1,898,000	5,100,000
U. Kingdom	6,520,000	9,108,000	19,182,000	34,810,000
France . .	18,249,000	8,194,000	10,035,000	36,478,000
Germany .	18,841,000	16,058,000	10,323,000	45,222,000
Russia . .	56,815,000	10,520,000	8,965,000	76,300,000
Austria . .	16,710,000	5,499,000	12,252,000	34,461,000
Italy . . .	9,169,000	4,494,000	12,007,000	25,670,000
Spain . .	8,170,000	3,490,000	5,040,000	16,700,000
Portugal .	3,200,000	700,000	300,000	4,200,000
Sweden . .	2,130,000	850,000	1,520,000	4,500,000
Norway . .	903,000	306,000	598,000	1,807,000
Denmark .	940,000	560,000	450,000	1,950,000
Belgium . .	1,200,000	1,910,000	2,390,000	5,500,000
Holland . .	2,600,000	900,000	800,000	4,300,000
Switzerland .	1,140,000	970,000	730,000	2,840,000
Greece . .	940,000	260,000	440,000	1,640,000
Europe . .	147,527,000	63,819,000	85,032,000	296,378,000
U. States .	23,010,000	11,520,000	15,620,000	50,150,000
Australia .	1,200,000	950,000	1,450,000	3,600,000
Total .	171,737,000	76,289,000	102,102,000	350,128,000

As the Census returns of different countries adopt no uniform classification, some including children and dependents, the tables cannot be followed unreservedly. The actual number of persons engaged in the various industries is approximately as follows :—

	Agriculture	Manufactures	Commerce, &c.	Total
England . .	1,341,000	4,161,000	6,210,000	11,712,000
Scotland . .	234,000	641,000	773,000	1,648,000
Ireland . .	986,000	387,000	1,002,000	2,375,000
U. Kingdom	2,561,000	5,189,000	7,985,000	15,735,000
France . .	6,455,000	4,443,000	5,210,000	16,108,000
Germany .	8,120,000	5,350,000	5,910,000	19,380,000
Russia . .	22,700,000	4,760,000	3,600,000	31,060,000
Austria .	10,682,000	3,090,000	2,438,000	16,210,000
Italy . . .	5,397,000	2,281,000	2,200,000	9,878,000
Spain . .	2,723,000	1,167,000	1,200,000	5,090,000
Portugal .	873,000	300,000	100,000	1,273,000
Sweden . .	853,000	400,000	350,000	1,603,000
Norway . .	380,000	170,000	150,000	700,000
Denmark .	420,000	250,000	160,000	830,000
Belgium . .	980,000	953,000	280,000	2,213,000
Holland . .	840,000	400,000	360,000	1,600,000
Switzerland .	440,000	370,000	290,000	1,100,000
Greece . .	187,000	52,000	91,000	330,000
Europe . .	63,611,000	29,175,000	30,324,000	123,110,000
U. States .	7,671,000	3,837,000	5,884,000	17,392,000
Australia .	398,000	327,000	563,000	1,288,000
Total .	71,680,000	33,339,000	36,771,000	141,790,000

The following table shows the number of persons in 1000 of the population dedicated to each industry :—

	Per 1000 of Population			
	Agriculture	Manufactures	Commerce, &c.	Total
England . .	52	160	238	450
Scotland . .	61	168	202	431
Ireland . . .	195	76	196	467
United Kingdom .	73	148	229	450
France . . .	170	117	137	424
Germany . .	178	118	130	426
Russia . . .	298	65	47	410
Austria . . .	280	81	64	425
Italy . . .	190	80	77	347
Spain . . .	160	70	72	302
Portugal . .	220	70	23	313
Sweden . .	190	90	80	360

	Per 1000 of Population			
	Agriculture	Manufacture	Commerce, &c.	Total
Norway . .	190	85	75	350
Denmark . .	210	120	80	410
Holland . .	200	93	85	378
Belgium . .	166	160	46	372
Switzerland . .	150	125	100	375
Greece . . .	115	32	55	202
Europe . . .	187	80	90	357
United States .	153	77	117	347
Australia . .	110	88	154	352

The number of persons occupied is no test of industry or the reverse. In some countries women and children are engaged in manufacture, which swells the ratio of workers; in others, the children are at school, the women prudently employed at home.

UNITED KINGDOM

In his *Resources of Nations* (1835) M'Gregor gives the following :—

	England, Families	Great Britain, Families			Ireland, Adults
	1811	1811	1821	1831	1823
Agriculture	697,000	896,000	979,000	961,000	1,138,000
Trade, manufactures, &c. . . .	1,315,000	1,648,000	1,963,000	2,453,000	1,699,000
Total . . .	2,012,000	2,544,000	2,942,000	3,414,000	2,837,000

Booth's digest of the Census returns 1841–81 shows the principal occupations of the United Kingdom as follows :—

	1841	1851	1861	1871	1881
Agriculture	3,401,000	3,519,000	3,149,000	2,808,000	2,561,000
Manufactures	3,137,000	3,922,000	4,164,000	4,377,000	4,535,000
Commerce	684,000	1,165,000	1,418,000	1,712,000	1,946,000
Mines	245,000	299,000	497,000	561,000	654,000
Building	485,000	588,000	687,000	817,000	964,000
Professions	223,000	320,000	363,000	422,000	524,000
Domestics	1,555,000	1,542,000	1,914,000	2,233,000	2,448,000
Various	1,632,000	1,406,000	1,368,000	1,754,000	2,103,000
Total . .	11,362,000	12,761,000	13,560,000	14,684,000	15,735,000

Agriculture

	1841	1851	1861	1871	1881
England	1,297,000	1,760,000	1,700,000	1,504,000	1,341,000
Scotland	260,000	299,000	276,000	258,000	234,000
Ireland	1,844,000	1,460,000	1,173,000	1,046,000	986,000
United Kingdom . . .	3,401,000	3,519,000	3,149,000	2,808,000	2,561,000

Manufactures

	1841	1851	1861	1871	1881
England	1,798,000	2,755,000	3,117,000	3,359,000	3,599,000
Scotland	350,000	480,000	481,000	518,000	557,000
Ireland	989,000	687,000	566,000	500,000	379,000
United Kingdom . . .	3,137,000	3,922,000	4,164,000	4,377,000	4,535,000

Commerce

	1841	1851	1861	1871	1881
England	499,000	892,000	1,110,000	1,362,000	1,578,000
Scotland	74,000	121,000	145,000	179,000	208,000
Ireland	111,000	152,000	163,000	171,000	160,000
United Kingdom . . .	684,000	1,165,000	1,418,000	1,712,000	1,946,000

Mines

	1841	1851	1861	1871	1881
England	210,000	235,000	425,000	475,000	562,000
Scotland	26,000	52,000	62,000	77,000	84,000
Ireland	9,000	12,000	10,000	9,000	8,000
United Kingdom . . .	245,000	299,000	497,000	561,000	654,000

Building

	1841	1851	1861	1871	1881
England	353,000	461,000	539,000	664.000	797,000
Scotland	60,000	69,000	82,000	95,000	111,000
Ireland	72,000	58,000	66,000	58,000	56,000
United Kingdom . . .	485,000	588,000	687,000	817,000	964,000

Learned Professions

	1841	1851	1861	1871	1881
England	159.000	246,000	284,000	337,000	423,000
Scotland	24,000	30,000	34,000	36,000	49,000
Ireland	40,000	44,000	45,000	49,000	52,000
United Kingdom	223,000	320,000	363,000	422,000	524,000

Domestic Servants

	1841	1851	1861	1871	1881
England	1,078,000	1,121,000	1,384,000	1,684,000	1,838,000
Scotland	135,000	138,000	165,000	160,000	183,000
Ireland	342,000	283,000	365,000	389,000	427,000
United Kingdom . . .	1,555,000	1,542,000	1,914,000	2,233,000	2,448,000

Total Employed Population

	1841	1851	1861	1871	1881
England	6,631,000	8,429,000	9,452,000	10,623,000	11,712.000
Scotland	1,107,000	1,317,000	1,374,000	1,494,000	1,648,000
Ireland	3,624,000	3,015,000	2,734,000	2,567,000	2,375,000
United Kingdom . . .	11,362,000	12,761,000	13,560,000	14,684,000	15,735,000

The useless classes in the three kingdoms were :—

	England			Scotland		
	1861	1871	1881	1861	1871	1881
Paupers	843,000	977,000	758,000	117,000	124,000	99,000
Insane	40,000	57,000	73 000	9,000	11,000	14,000
Prisoners	26,000	29,000	28,000	2,000	3,000	3,000
Total . .	909,000	1,063,000	859,000	128,000	138,000	116,000

	Ireland			United Kingdom		
Paupers	217,000	282,000	590,000	1,177,000	1,383,000	1,447,000
Insane	14,000	17,000	17,000	63,000	85,000	104,000
Prisoners	4,000	4,000	3,000	32,000	36,000	34,000
Total . .	235,000	303,000	610,000	1,272,000	1,504,000	1,585,000

The following table shows manufacturing industries :—

	1841	1851	1861	1871	1881
Chemicals	7,000	21,000	31,000	46,000	55,000
Paper . .	15,000	28,000	32,000	44,000	61,000
Leather .	44,000	63,000	65,000	70,000	72.000
Pottery .	34,000	51,000	61,000	73,000	78,000
Food . .	119,000	170,000	190,000	206,000	230,000
Carpentry	197,000	235,000	265,000	280,000	286,000
Metals .	250,000	362,000	451,000	522,000	572,000
Clothing .	795,000	1,150,000	1,230,000	1,210,000	1,223,000
Textiles .	1,481,000	1,605,000	1,457,000	1,400,000	1,283,000
Various .	195,000	237,000	382,000	526,000	675,000
Total .	3,137,000	3,922,000	4,164,000	4,377,000	4,535,000

The learned professions in the United Kingdom show almost twice as great a relative increase as the population in general. The numbers were :—

	1841	1851	1861	1871	1881
Divinity . .	30,000	44,000	56,000	64,000	78,000
Law . . .	39,000	45,000	45,000	50,000	56,000
Medicine .	56,000	75,000	76,000	87,000	102,000
Arts and science	22,000	33,000	38,000	52,000	64,000
Education .	76,000	123,000	148,000	169,000	224,000
Total .	223,000	320,000	363,000	422,000	524,000

	Ratio of Persons Employed in the United Kingdom				
	1841	1851	1861	1871	1881
Agriculture . . .	298	276	233	192	162
Manufactures . .	277	307	307	298	288
Commerce . . .	60	92	104	116	124
Mines	22	24	37	38	41
Building . . .	43	46	51	55	61
Professions . . .	19	25	26	28	33
Domestics . . .	137	120	141	153	156
Various . . .	144	110	101	120	135
Total . .	1,000	1,000	1,000	1,000	1,000

The occupations according to sexes were as follows :—

1841	Males	Females	Total	Ratio Males	Ratio Females	Ratio Total
Agriculture .	3,151,000	250,000	3,401,000	276	22	298
Manufactures	1,823,000	1,314,000	3,137,000	161	116	277
Commerce .	577,000	107,000	684,000	51	9	60
Professions .	162,000	61,000	223,000	14	5	19
Domestics .	325,000	1,230,000	1,555,000	29	108	137
Various . .	1,989,000	373,000	2,362,000	176	33	209
Total .	8,027,000	3,335,000	11,362,000	707	293	1,000

1851	Males	Females	Total	Ratio Males	Ratio Females	Ratio Total
Agriculture .	3,123,000	396,000	3,519,000	245	31	276
Manufactures	2,262,000	1,660,000	3,922,000	177	130	307
Commerce .	977,000	188,000	1,165,000	77	15	92
Professions .	207,000	113,000	320,000	16	9	25
Domestics .	197,000	1,345,000	1,542,000	15	105	120
Various . .	2,086,000	207,000	2,293,000	164	16	180
Total .	8,852,000	3,909,000	12,761,000	694	306	1,000

1861	Males	Females	Total	Ratio Males	Ratio Females	Ratio Total
Agriculture .	2,885,000	264,000	3,149,000	214	19	233
Manufactures	2,427,000	1,737,000	4,164,000	179	128	307
Commerce .	1,196,000	222,000	1,418,000	88	16	104
Professions .	224,000	139,000	363,000	16	10	26
Domestics .	229,000	1,685,000	1,914,000	16	125	141
Various . .	2,363,000	189,000	2,552,000	175	14	189
Total .	9,324,000	4,236,000	13,560,000	688	312	1,000

1871	Males	Females	Total	Ratio Males	Ratio Females	Ratio Total
Agriculture .	2,569,000	239,000	2,808,000	176	16	192
Manufactures	2,583,000	1,794,000	4,377,000	176	122	298
Commerce .	1,436,000	276,000	1,712,000	98	18	116
Professions .	253,000	169,000	422,000	17	11	28
Domestics .	248,000	1,985,000	2,233,000	17	135	152
Various . .	2,875,000	257,000	3,132,000	197	17	214
Total .	9,964,000	4,720,000	14,684,000	681	319	1,000

1881	Males	Females	Total	Ratio Males	Ratio Females	Ratio Total
Agriculture .	2,348,000	213,000	2,561,000	149	13	162
Manufactures	2,740,000	1,795,000	4,535,000	174	114	288
Commerce .	1,650,000	296,000	1,946,000	105	19	124
Professions .	299,000	225,000	524,000	19	14	33
Domestics .	359,000	2,089,000	2,448,000	23	133	156
Various . .	3,424,000	297,000	3,721,000	218	19	237
Total .	10,820,000	4,915,000	15,735,000	688	312	1,000

The number of adults and that of actual workers are shown as follows :—

Males

	Over 15 years of Age		Workers	
	1841	1881	1841	1881
England .	4,940,000	7,961,000	4,797,000	8,108,000
Scotland .	778,000	1,106,000	764,000	1,130,000
Ireland . .	2,444,000	1,609,000	2,466,000	1,582,000
U. Kingdom	8,162,000	10,676,000	8,027,000	10,820,000

Females

England .	5,325,000	8,613,000	1,834,000	3,604,000
Scotland .	898,000	1,263,000	343,000	518,000
Ireland . .	2,624,000	1,741,000	1,158,000	793,000
U. Kingdom	8,847,000	11,617,000	3,335,000	4,915,000

Total

England .	10,265,000	16,574,000	6,631,000	11,712,000
Scotland .	1,676,000	2,369,000	1,107,000	1,648,000
Ireland . .	5,068,000	3,350,000	3,624,000	2,375,000
U. Kingdom	17,009,000	22,293,000	11,362,000	15,735,000

It appears that the number of males employed in 1881 was greater than that of male adults in the population. Males are classified thus according to age :—

Age	Agriculture			Manufacture		
	1861	1871	1881	1861	1871	1881
0–15	177,000	158,000	95,000	178,000	166,000	126,000
15–65	2,458,000	2,141,000	2,008,000	2,131,000	2,289,000	2,496,000
Over 65	250,000	270,000	245,000	118,000	128,000	118,000
Total . . .	2,885,000	2,569,000	2,348,000	2,427,000	2,583,000	2,740,000

Age	Various			Total		
	1861	1871	1881	1861	1871	1881
0–15	184,000	209,000	173,000	539,000	533,000	394,000
15–65	3,581,000	4,278,000	5,149,000	8,170,000	8,708,000	9,653,000
Over 65 . .	247,000	325,000	410,000	615,000	723,000	773,000
Total . . .	4,012,000	4,812,000	5,732,000	9,324,000	9,964,000	10,820,000

	Agriculture					*Various*			
	1851	1861	1871	1881		1851	1861	1871	1881
Men . . .	2,930,000	2,708,000	2,411,000	2,253,000	Men . . .	3,318,000	3,828,000	4,603,000	5,559,000
Women . .	396,000	264,000	239,000	213,000	Women . .	1,853,000	2,235,000	2,687,000	2,907,000
Boys . . .	193,000	177,000	158,000	95,000	Boys . . .	149,000	184,000	209,000	173,000
Total .	3,519,000	3,149,000	2,808,000	2,561,000	Total .	5,320,000	6,247,000	7,499,000	8,639,000

	Manufactures					*All Occupations*			
Men . . .	2,083,000	2,249,000	2,417,000	2,614,000	Men . . .	8,331,000	8,785,000	9,431,000	10,426,000
Women . .	1,660,000	1,737,000	1,794,000	1,795,000	Women . .	3,909,000	4,236,000	4,720,000	4,915,000
Boys . . .	179,000	178,000	166,000	126,000	Boys . . .	521,000	539,000	533,000	394,000
Total .	3,922,000	4,164,000	4,377,000	4,535,000	Total .	12,761,000	13,560,000	14,684,000	15,735,000

If we compare the total number of persons of all occupations in 1881 with that in 1851, we find an increase of 25 per cent. in the men and 57 per cent. in the women, but a decrease of 25 per cent. in boys, which latter is doubtless due to the Board Schools.

The number of persons supported or making a living out of the several occupations is shown by Booth as follows:—

ENGLAND

					1841	1851	1861	1871	1881
Agriculture	.	.	.	.	3,875,000	4,247,000	4,194,000	3,746,000	3,435,000
Manufacture	.	.	.	.	4,006,000	5,263,000	5,940,000	6,553,000	7,313,000
Transport	.	.	.	.	474,000	868,000	1,177,000	1,406,000	1,799,000
Dealing .	.	.	.	.	973,000	1,385,000	1,684,000	2,054,000	2,334,000
Mines	.	.	.	.	564,000	828,000	1,065,000	1,231,000	1,553,000
Building .	.	.	.	.	1,126,000	1,381,000	1,633,000	1,984,000	2,464,000
Domestics	.	.	.	.	1,111,000	1,211,000	1,523,000	1,859,000	2,230,000
Sundry .	.	.	.	.	3,783,000	2,745,000	2,850,000	3,879,000	4,846,000
	Total	.	.		15,912,000	17,928,000	20,066,000	22,712,000	25,974,000

SCOTLAND

					1841	1851	1861	1871	1881
Agriculture	.	.	.	.	669,000	688,000	663,000	604,000	523,000
Manufacture	.	.	.	.	726,000	925,000	940,000	1,040,000	1,155,000
Transport	.	.	.	.	84,000	141,000	173,000	215,000	252,000
Dealing .	.	.	.	.	129,000	180,000	214,000	248,000	287,000
Mines	.	.	.	.	74,000	142,000	176,000	217,000	239,000
Building .	.	.	.	.	200,000	225,000	254,000	293,000	347,000
Domestics	.	.	.	.	146,000	147,000	184,000	190,000	242,000
Sundry .	.	.	.	.	592,000	440,000	458,000	553,000	691,000
	Total	.	.		2,620,000	2,888,000	3,062,000	3,360,000	3,736,000

IRELAND

					1841	1851	1861	1871	1881
Agriculture	.	.	.	.	5,074,000	3,650,000	3,020,000	2,635,000	2,562,000
Manufacture	.	.	.	.	1,498,000	1,059,000	879,000	777,000	640,000
Transport	.	.	.	.	60,000	122,000	137,000	154,000	148,000
Dealing .	.	.	.	.	195,000	214,000	227,000	237,000	234,000
Mines	.	.	.	.	27,000	33,000	29,000	25,000	23,000
Building .	.	.	.	.	229,000	171,000	192,000	172,000	176,000
Domestics	.	.	.	.	346,000	286,000	371,000	409,000	457,000
Sundry .	.	.	.	.	746,000	1,017,000	944,000	1,004,000	935,000
	Total	.	.		8,175,000	6,552,000	5,799,000	5,413,000	5,175,000

UNITED KINGDOM

					1841	1851	1861	1871	1881
Agriculture	.	.	.	.	9,618,000	8,585,000	7,877,000	6,985,000	6,520,000
Manufacture	.	.	.	.	6,230,000	7,247,000	7,759,000	8,370,000	9,108,000
Transport	.	.	.	.	618,000	1,131,000	1,487,000	1,775,000	2,199,000
Dealing .	.	.	.	.	1,297,000	1,779,000	2,125,000	2,539,000	2,855,000
Mines	.	.	.	.	665,000	1,003,000	1,270,000	1,473,000	1,815,000
Building .	.	.	.	.	1,555,000	1,777,000	2,079,000	2,449,000	2,987,000
Domestics	.	.	.	.	1,603,000	1,644,000	2,078,000	2,458,000	2,929,000
Sundry .	.	.	.	.	5,121,000	4,202,000	4,252,000	5,436,000	6,472,000
	Total	.	.		26,707,000	27,368,000	28,927,000	31,485,000	34,885,000

Ratios for the United Kingdom

	1841	1851	1861	1871	1881
Agriculture . . .	360	314	272	223	187
Manufactures . .	233	265	268	267	261
Domestics . . .	60	60	73	77	84
Building . . .	58	65	73	77	86
Dealing . . .	48	65	74	80	81
Mines . . .	25	36	44	47	52
Transport . . .	23	41	51	56	63
Sundry . . .	193	154	145	173	186
Total . .	1,000	1,000	1,000	1,000	1,000

ENGLAND AND WALES

The following are the official classifications :—

Year	Agriculture	Trade and Manufactures	Various	Total	Percentage of Total Population
1811	896,000	1,129,000	519,000	2,544,000	25.0
1821	979,000	1,350,000	612,000	2,941,000	24.3
1831	961,000	1,435,000	1,018,000	3,414,000	24.4
1841	1,499,000	3,111,000	2,180,000	3,990,000	24.9
1851	2,029,000	3,692,000	5,927,000	11,648,000	64.0
1861	2,011,000	4,829,000	6,234,000	13,074,000	64.7
1871	1,657,000	5,953,000	7,153,000	14,763,000	64.8
1881	1,383,000	7,353,000	...	...	...

Booth's digest of the Censuses from 1841 is as follows for England and Wales :—

	1841	1851	1861	1871	1881
Agriculture	1,297,000	1,760,000	1,700,000	1,504,000	1,341,000
Manufactures . . .	1,798,000	2,755,000	3,117,000	3,359,000	3,599,000
Commerce	499,000	892,000	1,110,000	1,362,000	1,578,000
Professions	159,000	246,000	284,000	337,000	423,000
Domestics	1,078,000	1,121,000	1,384,000	1,684,000	1,838,000
Various	1,800,000	1,655,000	1,857,000	2,377,000	2,933,000
Total . . .	6,631,000	8,429,000	9,452,000	10,623,000	11,712,000

1841

	Males	Females	Total	Males	Females	Total
Agriculture .	1,239,000	58,000	1,297,000	187	9	196
Manufactures	1,306,000	492,000	1,798,000	198	74	272
Commerce .	439,000	60,000	499,000	66	9	75
Professions .	112,000	47,000	159,000	17	7	24
Domestics .	234,000	843,000	1,077,000	35	127	162
Various . .	1,467,000	334,000	1,801,000	221	50	271
Total .	4,797,000	1,834,000	6,631,000	724	276	1,000

(Ratio per 1000)

1851

	Males	Females	Total	Males	Females	Total
Agriculture .	1,275,000	66,000	1,341,000	109	6	115
Manufactures	2,236,000	1,363,000	3,599,000	191	116	307
Commerce .	1,360,000	218,000	1,578,000	116	18	134
Professions .	234,000	189,000	423,000	20	15	35
Domestics .	292,000	1,546,000	1,838,000	25	132	157
Various . .	2,711,000	222,000	2,933,000	233	19	252
Total .	8,108,000	3,604,000	11,712,000	694	306	1,000

(Ratio per 1000)

1851

	Males	Females	Total	Males	Females	Total
Agriculture .	1,591,000	169,000	1,760,000	189	20	209
Manufactures	1,720,000	1,035,000	2,755,000	205	122	327
Commerce .	772,000	120,000	892,000	92	14	106
Professions .	149,000	97,000	246,000	17	12	29
Domestics .	150,000	971,000	1,121,000	17	115	132
Various . .	1,494,000	161,000	1,655,000	178	19	197
Total .	5,876,000	2,553,000	8,429,000	698	302	1,000

The following table shows the relative increase or decrease of the number of hands in each decade for each industry :—

Males

Year	Agriculture	Manufactures	Commerce	Professions	Domestics	Total
1841	100	100	100	100	100	100
1851	128	132	175	133	64	122
1861	128	147	219	149	72	135
1871	115	159	266	175	84	151
1881	103	171	309	209	125	167

1861

	Males	Females	Total	Males	Females	Total
Agriculture .	1,584,000	116,000	1,700,000	167	12	179
Manufactures	1,916,000	1,201,000	3,117,000	204	127	331
Commerce .	962,000	148,000	1,110,000	102	16	118
Professions .	167,000	117,000	284,000	18	12	30
Domestics .	169,000	1,215,000	1,384,000	18	128	146
Various . .	1,720,000	137,000	1,857,000	182	14	196
Total .	6,518,000	2,934,000	9,452,000	691	309	1,000

Females

Year	Agriculture	Manufactures	Commerce	Professions	Domestics	Total
1841	100	100	100	100	100	100
1851	291	211	162	206	115	140
1861	200	245	247	248	144	160
1871	146	261	322	300	177	183
1881	114	278	363	402	184	196

1871

	Males	Females	Total	Males	Females	Total
Agriculture .	1,419,000	85,000	1,504,000	133	8	141
Manufactures	2,079,000	1,280,000	3,359,000	196	120	316
Commerce .	1,169,000	193,000	1,362,000	110	18	128
Professions .	196,000	141,000	337,000	18	13	31
Domestics .	197,000	1,487,000	1,684,000	18	141	159
Various . .	2,190,000	187,000	2,377,000	207	18	225
Total .	7,250,000	3,373,090	10,623,000	682	318	1,000

Total

Year	Agriculture	Manufactures	Commerce	Professions	Domestics	Total
1841	100	100	100	100	100	100
1851	135	153	178	154	104	127
1861	130	173	222	179	127	142
1871	116	187	272	210	155	160
1881	103	201	316	264	170	176

Males are classified according to age :—

Agriculture

Age	1851	1861	1871	1881
0-15 . . .	110,000	123,000	103,000	72,000
15-65. . .	1,352,000	1,311,000	1,164,000	1,083,000
Over 65 . .	129,000	150,000	152,000	120,000
Total .	1,591,000	1,584,000	1,419,000	1,275,000

Agriculture

	1851	1861	1871	1881
Men . . .	1,481,000	1,461,000	1,316,000	1,203,000
Women . .	169,000	116,000	85,000	66,000
Boys . . .	110,000	123,000	103,000	72,000
Total .	1,760,000	1,700,000	1,504,000	1,341,000

Manufactures

Age	1851	1861	1871	1881
0-15 . . .	139,000	147,000	137,000	107,000
15-65. . .	1,498,000	1,678,000	1,840,000	2,035,000
Over 65 . .	83,000	91,000	102,000	94,000
Total .	1,720,000	1,916,000	2,079,000	2,236,000

Manufactures

	1851	1861	1871	1881
Men . . .	1,581,000	1,769,000	1,942,000	2,129,000
Women . .	1,035,000	1,201,000	1,280,000	1,363,000
Boys . . .	139,000	147,000	137,000	107,000
Total .	2,755,000	3,117,000	3,359,000	3,599,000

Commerce

Age	1851	1861	1871	1881
0-15 . . .	57,000	54,000	69,000	74,000
15-65. . .	675,000	858,000	1,036,000	1,228,000
Over 65 . .	40,000	50,000	64,000	58,000
Total .	772,000	962,000	1,169,000	1,360,000

Commerce

	1851	1861	1871	1881
Men . . .	715,000	908,000	1,100,000	1,286,000
Women . .	120,000	148,000	193,000	218,000
Boys . . .	57,000	54,000	69,000	74,000
Total .	892,000	1,110,000	1,362,000	1,578,000

Domestics

Age	1851	1861	1871	1881
0-15 . . .	8,000	10,000	10,000	10,000
15-65. . .	138,000	153,000	180,000	269,000
Over 65 . .	4,000	6,000	7,000	13,000
Total .	150,000	169,000	197,000	292,000

Domestics

	1851	1861	1871	1881
Men . . .	142,000	159,000	187,000	282,000
Women . .	971,000	1,215,000	1,487,000	1,546,000
Boys . . .	8,000	10,000	10,000	10,000
Total .	1,121,000	1,384,000	1,684,000	1,838,000

Various

Age	1851	1861	1871	1881
0-15 . . .	60,000	80,000	85,000	58,000
15-65. . .	1,463,000	1,681,000	2,136,000	2,636,000
Over 65 . .	120,000	126,000	165,000	251,000
Total .	1,643,000	1,887,000	2,386,000	2,945,000

Various

	1851	1861	1871	1881
Men . . .	1,583,000	1,807,000	2,301,000	2,887,000
Women . .	258,000	254,000	328,000	411,000
Boys . . .	60,000	80,000	85,000	58,000
Total .	1,901,000	2,141,000	2,714,000	3,356,000

Total of Males

Age	1851	1861	1871	1881
0-15 . . .	374,000	414,000	404,000	321,000
15-65. . .	5,126,000	5,681,000	6,356,000	7,251,000
Over 65 . .	376,000	423,000	490,000	536,000
Total .	5,876,000	6,518,000	7,250,000	8,108,000

Total

	1851	1861	1871	1881
Men . . .	5,502,000	6,104,000	6,846,000	7,787,000
Women . .	2,553,000	2,934,000	3,373,000	3,604,000
Boys . . .	374,000	414,000	404,000	321,000
Total .	8,429,000	9,452,000	10,623,000	11,712,000

SCOTLAND

Booth's digest of the Censuses classifies as follows :—

	1841	1851	1861	1871	1881
Agriculture	260,000	299,000	276,000	258,000	234,000
Manufactures	350,000	480,000	481,000	518,000	557,000
Commerce	74,000	121,000	145,000	179,000	208,000
Professions	24,000	30,000	34,000	36,000	49,000
Domestics	135,000	138,000	165,000	160,000	183,000
Various	264,000	249,000	273,000	343,000	417,000
Total . .	1,107,000	1,317,000	1,374,000	1,494,000	1,648,000

	1841			Ratio per 1000				1851			Ratio per 1000		
	Males	Females	Total	Males	Females	Total		Males	Females	Total	Males	Females	Total
Agriculture .	213,000	47,000	260,000	192	43	235	Agriculture .	239,000	60,000	299,000	181	45	226
Manufactures	214,000	136,000	350,000	192	123	315	Manufactures	285,000	195,000	480,000	217	148	365
Commerce .	60,000	14,000	74,000	54	13	67	Commerce .	99,000	22,000	121,000	75	17	92
Professions .	20,000	4,000	24,000	18	4	22	Professions .	26,000	4,000	30,000	20	3	23
Domestics .	20,000	115,000	135,000	18	104	122	Domestics .	12,000	126,000	138,000	9	96	105
Various . .	237,000	27,000	264,000	214	25	239	Various . .	220,000	29,000	249,000	167	22	189
Total .	764,000	343,000	1,107,000	688	312	1,000	Total .	881,000	436,000	1,317,000	669	331	1,000

	1861			Ratio per 1000		
	Males	Females	Total	Males	Females	Total
Agriculture .	229,000	47,000	276,000	166	34	200
Manufactures	280,000	201,000	481,000	204	146	350
Commerce .	117,000	28,000	145,000	85	20	105
Professions .	26,000	8,000	34,000	19	6	25
Domestics .	15,000	150,000	165,000	11	109	120
Various . .	254,000	19,000	273,000	185	15	200
Total .	921,000	453,000	1,374,000	670	330	1,000

1871						
Agriculture .	207,000	51,000	258,000	138	34	172
Manufactures	310,000	208,000	518,000	207	139	346
Commerce .	142,000	37,000	179,000	95	25	120
Professions .	26,000	10,000	36,000	17	7	24
Domestics .	21,000	139,000	160,000	14	93	107
Various . .	310,000	33,000	343,000	206	25	231
Total .	1,016,000	478,000	1,494,000	677	323	1,000

1881						
Agriculture .	183,000	51,000	234,000	111	31	142
Manufactures	340,000	217,000	557,000	206	132	338
Commerce .	169,000	39,000	208,000	102	24	126
Professions .	34,000	15,000	49,000	20	9	29
Domestics .	31,000	152,000	183,000	19	92	111
Various . .	373,000	44,000	417,000	227	27	254
Total .	1,130,000	518,000	1,648,000	685	315	1,000

The following table shows the relative increase or decrease of hands in each decade for each industry:—

Year	Agriculture	Manufactures	Commerce	Professions	Domestics	Total
1841	100	100	100	100	100	100
1851	115	137	162	125	102	119
1861	106	137	196	141	122	124
1871	99	148	242	150	118	135
1881	90	159	281	204	135	149

Males are classified thus according to age :—

Agriculture				
Age	1851	1861	1871	1881
0–15 . . .	11,000	11,000	9,000	6,000
15–65 . . .	208,000	196,000	177,000	159,000
Over 65 . .	20,000	22,000	21,000	18,000
Total .	239,000	229,000	207,000	183,000

Manufactures				
0–15 . . .	23,000	19,000	18,000	12,000
15–65 . . .	247,000	246,000	278,000	314,000
Over 65 . .	15,000	15,000	14,000	14,000
Total .	285,000	280,000	310,000	340,000

Commerce				
0–15 . . .	6,000	5,000	8,000	9,000
15–65 . . .	88,000	106,000	128,000	154,000
Over 65 . .	5,000	6,000	6,000	6,000
Total .	99,000	117,000	142,000	169,000

Various				
Age	1851	1861	1871	1881
0–15 . . .	9,000	13,000	18,000	13,000
15–65 . . .	231,000	263,000	307,000	386,000
Over 65 . .	18,000	19,000	32,000	39,000
Total .	258,000	295,000	357,000	438,000

Total of Males				
0–15 . . .	49,000	48,000	53,000	40,000
15–65 . . .	774,000	811,000	890,000	1,013,000
Over 65 . .	58,000	62,000	73,000	77,000
Total .	881,000	921,000	1,016,000	1,130,000

Agriculture				
Men . . .	228,000	218,000	198,000	177,000
Women . .	60,000	47,000	51,000	51,000
Boys . . .	11,000	11,000	9,000	6,000
Total .	299,000	276,000	258,000	234,000

Manufactures				
Men . . .	262,000	261,000	292,000	328,000
Women . .	195,000	201,000	208,000	217,000
Boys . . .	23,000	19,000	18,000	12,000
Total .	480,000	481,000	518,000	557,000

Commerce				
Men . . .	93,000	112,000	134,000	163,000
Women . .	22,000	28,000	37,000	39,000
Boys . . .	6,000	5,000	8,000	6,000
Total .	121,000	145,000	179,000	208,000

Domestics				
Men . . .	12,000	15,000	21,000	31,000
Women . .	126,000	150,000	139,000	152,000
Total .	138,000	165,000	160,000	183,000

Various				
Men . . .	237,000	267,000	318,000	391,000
Women . .	33,000	27,000	43,000	59,000
Boys . . .	9,000	13,000	18,000	16,000
Total .	279,000	307,000	379,000	466,000

Total				
Men . . .	832,000	873,000	963,000	1,090,000
Women . .	436,000	453,000	478,000	518,000
Boys . . .	49,000	48,000	53,000	40,000
Total .	1,317,000	1,374,000	1,494,000	1,648,000

The number of men employed in Scotland in all occupations rose 30 per cent. in 30 years, that of women 18 per cent., while that of boys (as in England) shows a falling off.

IRELAND

Booth's digest of the Censuses is condensed as follows :—

	1841	1851	1861	1871	1881
Agriculture	1,844,000	1,460,000	1,173,000	1,046,000	986,000
Manufactures	989,000	687,000	566,000	500,000	379,000
Commerce	111,000	152,000	163,000	171,000	160,000
Professions	40,000	44,000	45,000	49,000	52,000
Domestics	342,000	283,000	365,000	389,000	427,000
Various	298,000	389,000	422,000	412,000	371,000
Total . . .	3,624,000	3,015,000	2,734,000	2,567,000	2,375,000

1841	Males	Females	Total	Males	Females	Total
Agriculture .	1,699,000	145,000	1,844,000	467	40	507
Manufactures	303,000	686,000	989,000	84	190	274
Commerce .	78,000	33,000	111,000	22	9	31
Professions .	30,000	10,000	40,000	8	3	11
Domestics .	71,000	271,000	342,000	20	75	95
Various . .	285,000	13,000	298,000	79	3	82
Total .	2,466,000	1,158,000	3,624,000	680	320	1,000

1871	Males	Females	Total	Males	Females	Total
Agriculture .	943,000	103,000	1,046,000	367	40	407
Manufactures	194,000	306,000	500,000	76	119	195
Commerce .	125,000	46,000	171,000	48	18	66
Professions .	31,000	18,000	49,000	12	7	19
Domestics .	30,000	359,000	389,000	12	140	152
Various . .	375,000	37,000	412,000	146	15	161
Total .	1,698,000	869,000	2,567,000	661	339	1,000

1851	Males	Females	Total	Males	Females	Total
Agriculture .	1,293,000	167,000	1,460,000	428	56	484
Manufactures	257,000	430,000	687,000	86	142	228
Commerce .	106,000	46,000	152,000	35	15	50
Professions .	32,000	12,000	44,000	11	4	15
Domestics .	35,000	248,000	283,000	12	82	94
Various . .	372,000	17,000	389,000	123	6	129
Total .	2,095,000	920,000	3,015,000	695	305	1,000

1881	Males	Females	Total	Males	Females	Total
Agriculture .	890,000	96,000	986,000	376	40	416
Manufactures	164,000	215,000	379,000	70	90	160
Commerce .	121,000	39,000	160,000	50	17	67
Professions .	31,000	21,000	52,000	12	8	20
Domestics .	36,000	391,000	427,000	15	164	179
Various . .	340,000	31,000	371,000	145	13	158
Total .	1,582,000	793,000	2,375,000	668	332	1,000

1861	Males	Females	Total	Males	Females	Total
Agriculture .	1,072,000	101,000	1,173,000	393	37	430
Manufactures	231,000	335,000	566,000	84	123	207
Commerce .	117,000	46,000	163,000	42	17	59
Professions .	31,000	14,000	45,000	11	5	16
Domestics .	45,000	320,000	365,000	17	116	133
Various . .	389,000	33,000	422,000	143	12	155
Total .	1,885,000	849,000	2,734,000	690	310	1,000

The following table shows the relative increase or decrease of hands in each decade for each industry :—

Year	Agriculture	Manufactures	Commerce	Professions	Domestics	Total
1841	100	100	100	100	100	100
1851	79	70	138	110	82	83
1861	63	57	148	112	107	75
1871	57	51	155	122	114	71
1881	53	38	146	130	125	65

Males are classified thus according to age :—

Age	Agriculture			Manufactures		
	1861	1871	1881	1861	1871	1881
0–15	43,000	46,000	17,000	12,000	11,000	7,000
15–65	951,000	800,000	766,000	207,000	171,000	147,000
Over 65	78,000	97,000	107,000	12,000	12,000	10,000
Total . .	1,072,000	943,000	890,000	231,000	194,000	164,000

Age	Various			Total		
	1861	1871	1881	1861	1871	1881
0–15	22,000	19,000	9,000	77,000	76,000	33,000
15–65	520,000	491,000	476,000	1,678,000	1,462,000	1,389,000
Over 65	40,000	51,000	43,000	130,000	160,000	160,000
Total . .	582,000	561,000	528,000	1,885,000	1,698,000	1,582,000

Agriculture	1851	1861	1871	1881
Men . . .	1,221,000	1,029,000	897,000	873,000
Women . .	167,000	101,000	103,000	96,000
Boys . . .	72,000	43,000	46,000	17,000
Total .	1,460,000	1,173,000	1,046,000	986,000

Various	1851	1861	1871	1881
Men . . .	536,000	560,000	542,000	519,000
Women . .	323,000	413,000	460,000	482,000
Boys . . .	9,000	22,000	19,000	9,000
Total .	868,000	995,000	1,021,000	1,010,000

Manufactures				
Men . . .	240,000	219,000	183,000	157,000
Women . .	430,000	335,000	306,000	215,000
Boys . . .	17,000	12,000	11,000	7,000
Total .	687,000	566,000	500,000	379,000

Total				
Men . . .	1,997,000	1,808,000	1,622,000	1,549,000
Women . .	920,000	849,000	869,000	793,000
Boys . . .	98,000	77,000	76,000	33,000
Total .	3,015,000	2,734,000	2,567,000	2,375,000

FRANCE

Successive Censuses have distinguished agricultural from other population as follows :—

	1851	1861	1872	1881
Agricultural	21,920,000	19,870,000	18,513,000	18,249,000
Various	13,863,000	17,876,000	18,500,000	19,157,000
Total . .	35,783,000	36,746,000	37,013,000	37,406,000

The Censuses of 1872 and 1881 compare as follows :—

	1872			1881		
	Principals	Dependents	Total	Principals	Dependents	Total
Agriculture . . .	5,970,000	12,543,000	18,513,000	6,456,000	11,793,000	18,249,000
Manufactures . . .	3,827,000	4,624,000	8,451,000	3,980,000	4,214,000	8,194,000
Commerce . . .	1,151,000	1,809,000	2,960,000	1,163,000	1,516,000	2,679,000
Various . . .	2,461,000	2,737,000	5,198,000	3,309,000	4,047,000	7,356,000
Total . .	13,409,000	21,713,000	35,122,000	14,908,000	21,570,000	36,478,000

	1881					
	Heads of Families			Principals, Family, and Servants		
	Males	Females	Total	Males	Females	Total
Agriculture . . .	4,757,000	1,698,000	6,455,000	9,157,000	9,092,000	18,249,000
Factories	658,000	379,000	1,037,000	1,032,000	1,069,000	2,101,000
Artisans	1,931,000	1,012,000	2,943,000	2,999,000	3,094,000	6,093,000
Mines	387,000	76,000	463,000	616,000	513,000	1,129,000
Transport . . .	285,000	22,000	307,000	444,000	357,000	801,000
Commerce . . .	818,000	345,000	1,163,000	1,330,000	1,349,000	2,679,000
Innkeepers, &c. .	306,000	137,000	443,000	562,000	603,000	1,165,000
Civil service . .	265,000	49,000	314,000	418,000	388,000	806,000
Capitalists . . .	437,000	425,000	862,000	734,000	1,116,000	1,850,000
Professions . .	240,000	135,000	375,000	353,000	426,000	779,000
Various . . .	523,000	23,000	546,000	609,000	217,000	826,000
Total . .	10,607,000	4,301,000	14,908,000	18,254,000	18,224,000	36,478,000

GERMANY

The Census of 1882 gave the following results :—

	Agriculture	Manufactures	Commerce	Sundry	Total
Prussia	11,678,000	9,394,000	2,725,000	3,491,000	27,288,000
Bavaria	2,644,000	1,492,000	436,000	697,000	5,269,000
Saxony	579,000	1,696,000	361,000	379,000	3,015,000
Wurtemburg	927,000	674,000	143,000	213,000	1,957,000
Baden	752,000	492,000	141,000	174,000	1,559,000
Small states . . .	2,261,000	2,310,000	725,000	838,000	6,134,000
Total . .	18,841,000	16,058,000	4,531,000	5,792,000	45,222,000

The item of " Sundry " comprises 3,546,000 persons of various occupations, and 2,246,000 who have none.

The Prussian Census of 1867 was as follows :—

	Principals	Dependents	Males	Females	Total
			1867		
Agriculture	4,105,000	7,422,000	5,612,000	5,915,000	11,527,000
Manufactures	1,990,000	3,448,000	2,965,000	2,473,000	5,438,000
Mines	202,000	426,000	344,000	284,000	628,000
Commerce	290,000	540,000	430,000	400,000	830,000
Various	2,539,000	3,009,000	2,519,000	3,029,000	5,548,000
Total .	9,126,000	14,845,000	11,870,000	12,101,000	23,971,000

The occupations of the people of Saxony were in the following ratio :—

	1849		1871		1882
	Males	Females	Males	Females	All
Agriculture . . .	209	228	158	166	193
Manufactures . .	486	443	532	506	563
Commerce . . .	61	55	99	103	120
Sundry	244	274	211	225	124
Total . .	1,000	1,000	1,000	1,000	1,000

RUSSIA

The Census of 1872 gave approximately as follows for Russia and Poland :—

	Males	Females	Total	Ratio
Nobles . . .	437,300	436,800	874,100	12
Merchants . .	232,600	216,100	448,700	6
Clergy	281,500	315,000	596,500	8
Artisans, &c. .	3,044,000	3,105,000	6,149,000	85
Peasants . . .	31,941,600	32,223,000	64,164,700	889
Total . .	35,937,000	36,296,100	72,233,000	1,000

The following table of ratios was published in 1867 :—

	Ratio	
	Russia	Poland
Clergy	10	2
Nobles	13	14
Soldiers	57	13
Citizens, &c. . . .	96	267
Peasants	824	704
Total . .	1,000	1,000

Lendheim gave the following table in 1873, apparently excluding Poland :—

		Ratio
Nobles	919,000	13
Clergy . . .	633,000	9
Foreigners	148,000	2
Military	3,943,000	53
Merchants, artisans, &c. .	6,907,000	99
Peasants	56,815,000	824
Total . .	69,365,000	1,000

AUSTRIA-HUNGARY

The Census of 1870 showed as follows :—

	Austria	Hungary	Total
Agriculture . .	5,520 000	5,010,000	10,530,000
Manufactures . .	2,198,000	647,000	2,845,000
Commerce . .	303,000	105,000	408,000
Transport . . .	139,000	29,000	168,000
Mines	104,000	50,000	154,000
Capitalists . .	435,000	81,000	516,000
Servants, &c. . .	2,806,000	1,143,000	3,949,000
Various . . .	465,000	264,000	729,000
Total . .	11,970,000	7,329,000	19,299,000

That of 1880 was as follows :—

	Austria	Hungary	Total
Agriculture . .	6,161,000	4,521,000	10,682,000
Manufactures . .	2,157,000	789,000	2,946,000
Commerce . . .	435,000	186,000	621,000
Mines	118,000	26,000	144,000
Capitalists . . .	278,000	53,000	331,000
Civil service . .	99,000	66,000	165,000
Domestics . . .	890,000	430,000	1,320,000
Various	1,217,000	1,216,000	2,433,000
Total . .	11,355,000	7,287,000	18,642,000

	Austria		Hungary		All Empire	
	Males	Females	Males	Females	Males	Females
Agriculture . . .	3,432,000	2,729,000	3,548,000	973,000	6,980,000	3,702,000
Manufactures . . .	1,632,000	525,000	714,000	75,000	2,346,000	600,000
Commerce . . .	351,000	84,000	166,000	20,000	517,000	104,000
Servants . . .	245,000	645,000	46,000	384,000	291,000	1,029,000
Various	1,101,000	611,000	734,000	628,000	1,835,000	1,239,000
Total . .	6,761,000	4,594,000	5,208,000	2,080,000	11,969,000	6,674,000

In 1880 the population of Austria was classified thus :—

	Principals	Family	Servants	Total	Ratio
Agriculture .	2,365,000	5,697,000	4,127,000	12,189,000	550
Manufactures	576,000	2,399,000	1,735,000	4,710,000	212
Commerce .	185,000	459,000	196,000	840,000	38
Transport .	18,000	227,000	114,000	359,000	16
Capitalists .	207,000	273,000	63,000	543,000	24
Various . .	518,000	1,691,000	1,294,000	3,503,000	160
Total .	3,869,000	10,746,000	7,529,000	22,144,000	1,000

The population of Hungary is classified thus :—

	Principals	Family,&c.	Total	Ratio
Agriculture .	1,475,000	3,046,000	4,521,000	367
Manufactures .	381,000	408,000	789,000	64
Commerce . .	97,000	89,000	186,000	15
Various . . .	264,000	6,557,000	6,821,000	554
Total . .	2,217,000	10,100,000	12,317,000	1,000

Besides the above, there were in Hungary 3,325,000 persons of no occupation.

Adding together the two foregoing tables, we find for the whole monarchy as follows :—

	Principals	Family,&c.	Total	Ratio
Agriculture .	3,840,000	12,870,000	16,710,000	484
Manufactures .	957,000	4,542,000	5,499,000	160
Commerce . .	282,000	744,000	1,026,000	30
Various . . .	1,007,000	10,219,000	11,226,000	326
Total . .	6,086,000	28,375,000	34,461,000	1,000

ITALY

The Census of 1861 gave the following classification :—

Agriculture	8,290,000
Manufactures . . .	3,230,000
Sundry and children . .	10,250,000
Total population . .	21,770,000

That of 1871 was as follows :—

Agriculture	8,566,000
Manufactures, &c. . .	5,817,000
Sundry and children . .	12,423,000
Total population . .	26,801,000

That of 1881 was as follows :—

	Men	Women	Children	Total
Agriculture .	5,397,000	3,094,000	678,000	9,169,000
Manufactures	2,281,000	1,904,000	309,000	4,494,000
Commerce .	247,000	33,000	5,000	285,000
Transport .	310,000	3,000	9,000	322,000
Mines . .	60,000	...	5,000	65,000
Professions .	215,000	80,000	...	295,000
Domestics .	266,000	448,000	47,000	761,000
Various . .	1,102,000	675,000	42,000	1,819,000
Useful occupations }	9,878,000	6,237,000	1,095,000	17,210,000
Indefinite .	1,308,000	4,999,000	2,150,000	8,457,000
Prisoners and vagrants . }	73,000	56,000	5,000	134,000
Total . .	11,259,000	11,292,000	3,250,000	25,801,000

The total population was 28,460,000, including 2,659,000 infants under 9 years, of whom the Census took no cognisance. Children in the above table are all over 9 and under 14 years.

SPAIN

The Census of 1877 showed as follows :—

		Ratio
Agriculture . . .	2,723,000	475
Manufactures . . .	1,167,000	203
Commerce, &c. . .	213,000	37
Vagrants, smugglers, &c. .	1,630,000	285
Total .	5,736,000	1,000
Women and children .	11,018,000	
Total population .	16,754,000	

SWEDEN

The classification of the people down to 1855 was as follows :—

	1805	1830	1855	Families in 1855
Nobles . .	9,503	10,458	11,742	1,666
Clergy . .	15,145	14,153	15,362	2,232
Citizens . .	65,411	66,693	81,408	13,366
Peasants . .	1,759,000	2,169,000	2,378,000	394,610
Various . .	563,641	627,796	1,152,788	180,429
Total .	2,412,700	2,888,100	3,639,300	592,303

The Census of 1870 showed as follows :—

	Principals			Principals and Dependents, Ratio		
	Males	Females	Total	Males	Females	Total
Agriculture .	414,000	33,000	447,000	270	271	541
Manufactures	62,000	6,000	68,000	52	47	99
Commerce .	22,000	2,000	24,000	17	17	34
Various . .	190,000	214,000	404,000	145	181	326
Total .	688,000	255,000	943,000	484	516	1,000

The Census of Sweden for 1880 gave the following results :—

	Principals			Families		
	Males	Females	Total	Males	Females	Total
Agriculture . . .	641,000	212,000	853,000	434,000	840,000	1,274,000
Manufactures . . .	157,000	17,000	174,000	134,000	243,000	377,000
Commerce . . .	68,000	5,000	73,000	41,000	81,000	122,000
Various	66,000	8,000	174,000	...	...	...
Total . . .	932,000	242,000	1,174,000	664,000	1,265,000	1,929,000
Unoccupied . . .	270,000	214,000	484,000	237,000	428,000	665,000
Total population .	1,202,000	456,000	1,658,000	901,000	1,693,000	2,594,000

	Total Population			Ratio		
Agriculture . . .	1,172,000	1,173,000	2,345,000	257	257	514
Manufactures . . .	297,000	280,000	577,000	64	62	126
Commerce . . .	113,000	109,000	222,000	25	24	49
Various . . .	125,000	128,000	253,000	27	27	54
Unoccupied . . .	509,000	660,000	1,169,000	112	145	257
Total . .	2,216,000	2,350,000	4,566,000	485	515	1,000

NORWAY

The Censuses of 1865 and 1875 gave these results :—

	Principals, 1875		Total Population, 1875			Total Population, 1865
	Males	Females	Males	Females	Total	
Agriculture . . .	106,000	9,000	437,000	466,000	903,000	1,035,000
Manufactures . . .	39,000	26,000	155,000	151,000	306,000	343,000
Commerce . . .	12,000	2,000	96,000	99,000	195,000	149,000
Various . . .	75,000	4,000	189,000	214,000	403,000	175,000
Total . .	232,000	41,000	877,000	930,000	1,807,000	1,702,000

There was a further classification in 1875 as follows :—

	Principals	Families	Servants	Total
Agriculture . .	115,000	523,000	265,000	903,000
Manufactures .	65,000	91,000	150,000	306,000
Commerce . .	14,000	39,000	142,000	195,000
Various . . .	79,000	86,000	238,000	403,000
Total . .	273,000	739,000	795,000	1,807,000

DENMARK

The official tables give the occupations of the people thus :—

	1860	1880	No. in 1880
Agriculture . . .	395	469	931,000
Manufactures . . .	228	229	590,000
Commerce . . .	53	68	
Various . . .	324	234	459,000
Total . .	1,000	1,000	1,980,000

The numbers in 1880 include children, and are double the real numbers.

FINLAND

The Census of 1865 showed the following ratios :—

	Males	Females	Total Population
Agriculture . . .	834	755	793
Manufactures . . .	55	43	49
Commerce . . .	20	12	16
Various . . .	91	190	142
Total . .	1,000	1,000	1,000

BELGIUM

The Census of 1856 was as follows :—

	Males	Females	Total
Agriculture . .	709,000	353,000	1,062,000
Manufactures .	466,000	326,000	792,000
Commerce . . .	80,000	49,000	129,000
Transport . . .	26,000	1,000	27,000
Domestics . . .	19,000	68,000	87,000
Mines	63,000	10,000	73,000
Capitalists . . .	22,000	28,000	50,000
Various . . .	88,000	19,000	107,000
Total . .	1,473,000	854,000	2,327,000
Children, &c. . .	799,000	1,404,000	2,203,000
Population . .	2,272,000	2,258,000	4,530,000

That of 1880 for Belgium was as follows :—

	Males	Females	Total
Mines	226,000	18,000	244,000
Manufactures .	467,000	242,000	709,000
Commerce . . .	143,000	101,000	244,000
Agriculture . .	530,000	452,000	982,000
Various . . .	433,000	148,000	581,000
Total . .	1,799,000	961,000	2,760,000
Children, &c. . .	1,010,000	1,825,000	2,835,000
Population . .	2,809,000	2,786,000	5,595,000

GREECE

The principal occupations in 1861 were :—

		Ratio
Agriculture	187,000	566
Manufactures .	52,000	158
Commerce, &c. . . .	91,000	276
Total . .	330,000	1,000

The above is exclusive of 1,003,000 women and children.

SWITZERLAND

The Census of 1880 gave as follows :—

		Ratio
Agriculture . . .	1,139,000	401
Manufactures . . .	971,000	341
Commerce . . .	206,000	72
Transport . . .	112,000	39
Various . . .	418,000	147
Total . .	2,846,000	1,000

That of 1870 was as follows :—

		Ratio
Agriculture . . .	543,000	414
Manufactures . . .	492,000	374
Commerce . . .	49,000	37
Various . . .	233,000	175
Total . .	1,317,000	1,000

The latter is apparently only of adults, that of 1880 of the whole population. In 1860 the number of hands employed in manufactures was 330,000.

PORTUGAL

The Census of 1861 gave as follows :—

		Ratio
Agriculture . . .	873,000	770
Manufactures .	210,000	185
Commerce . . .	30,000	27
Various . . .	20,000	18
Total . .	1,133,000	1,000

The above is exclusive of 2,650,000 women and children.

UNITED STATES

The first Census as to occupation was taken in 1820, the second in 1840, since which latter date they have been decennial, viz. :—

Year	Agriculture	Manufactures	Commerce, &c.	Total
1820	2,071,000	350,000	72,000	2,493,000
1840	3,718,000	792,000	287,000	4,797,000
1850	2,401,000	958,000	2,013,000	5,372,000
1860	3,220,000	1,311,000	3,756,000	8,287,000
1870	5,923,000	2,054,000	4,529,000	12,506,000
1880	7,671,000	2,707,000	7,014,000	17,392,000

The returns for 1820 and 1840 include all ages and colours, but those for 1850 and 1860 are only for free male adults. Assuming that in these years 50 per cent. of negro adults were engaged in agriculture, and 50 per cent. in commerce, &c., the real number of workers would be :—

Year	Agriculture	Manufactures	Commerce, &c.	Total
1820	2,071,000	350,000	72,000	2,493,000
1840	3,718,000	792,000	287,000	4,797,000
1850	3,329,000	958,000	2,950,000	7,237,000
1860	4,342,000	1,311,000	4,878,000	10,531,000
1870	5,923,000	2,054,000	4,529,000	12,506,000
1880	7,671,000	2,707,000	7,014,000	17,392,000

Adopting the second table as more correct, and comparing the numbers of persons occupied with that of all inhabitants, male and female, between 16 and 60 years of age, we find as follows :—

	Workers	Persons of Working Age	Ratio of Workers
1820	2,493,000	4,816,000	51.7
1840	4,797,000	8,887,000	53.9
1850	7,237,000	12,596,000	57.4
1860	10,531,000	17,301,000	60.7
1870	12,506,000	21,561,000	58.2
1880	17,392,000	27,307,000	63.6

The Census for 1820 showed as follows :—

States	Agriculture	Manufactures	Commerce, &c.	Total
New England	285,000	82,000	22,000	389,000
Middle . .	523,000	160,000	23,000	706,000
South. . .	1,064,000	83,000	22,000	1,169,000
West . . .	199,000	25,000	5,000	229,000
Total .	2,071,000	350,000	72,000	2,493,000

That of 1840 was as follows :—

States	Agriculture	Manufactures	Commerce, &c.	Total
New England	415,000	187,000	74,000	676,000
Middle . .	810,000	334,000	108,000	1,252,000
South. . .	1,790,000	149,000	63,000	2,002,000
West . . .	703,000	122,000	42,000	867,000
Total .	3,718,000	792,000	287,000	4,797,000

In 1870	Americans	Irish	Germans	British	Various	Total
Agriculture . . .	5,303,000	138,000	225,000	95,000	162,000	5,923,000
Manufactures . . .	1,778,000	265,000	308,000	176,000	180,000	2,707,000
Commerce, &c. . .	2,721,000	544,000	303,000	103,000	205,000	3,876,000
Total . .	9,802,000	947,000	836,000	374,000	547,000	12,506,000

The minor industries of 1840 were in detail thus :—

States	Commerce	Navigation	Professions	Mining	Total
New England	18,000	44,000	11,000	1,000	74,000
Middle . .	50,000	27,000	24,000	7,000	108,000
South. . .	31,000	11,000	17,000	4,000	63,000
West . . .	19,000	7,000	13,000	3,000	42,000
Total .	118,000	89,000	65,000	15,000	287,000

The Census of 1850 excluded the slave population, as already observed, and showed as follows :—

States	Agriculture	Manufactures	Commerce, &c.	Total
New England	269,000	313,000	230,000	812,000
Middle . .	592,000	418,000	780,000	1,790,000
South. . .	736,000	104,000	360,000	1,200,000
West . . .	804,000	123,000	643,000	1,570,000
Total .	2,401,000	958,000	2,013,000	5,372,000

The Census of 1860 also excluded the slave population, and showed thus :—

States	Occupied	Persons of Working Age (16–60)			Ratio of Workers
		Males	Females	Total	
New England	1,104,000	915,000	968,000	1,883,000	58.7
Middle . .	2,684,000	2,357,000	2,406,000	4,763,000	56.4
South. . .	1,645,000	2,548,000	2,463,000	5,011,000	33.0
West . . .	2,854,000	3,098,000	2,554,000	5,652,000	50.5
Total .	8,287,000	9,918,000	8,391,000	17,309,000	47.8

States	Agriculture	Manufactures	Commerce, &c.	Total
New England	293,000	390,000	421,000	1,104,000
Middle . .	721,000	542,000	1,421,000	2,684,000
South. . .	860,000	126,000	659,000	1,645,000
West . . .	1,346,000	253,000	1,255,000	2,854,000
Total .	3,220,000	1,311,000	3,756,000	8,287,000

That of 1870 included the entire population, and gave the following results :—

States	Agriculture	Manufactures	Commerce, &c.	Total
New England	316,000	555,000	428,000	1,299,000
Middle . .	793,000	1,012,000	1,302,000	3,107,000
South. . .	2,669,000	283,000	792,000	3,744,000
West . . .	2,145,000	857,000	1,354,000	4,356,000
Total .	5,923,000	2,707,000	3,876,000	12,506,000
Males . .	5,526,000	2,353,000	2,790,000	10,670,000
Females . .	397,000	354,000	1,086,000	1,836,000
Total .	5,923,000	2,707,000	3,876,000	12,506,000

That of 1880 gave the following :—

States	Agriculture	Manufactures	Commerce, &c.	Total
New England	301,000	709,000	562,000	1,572,000
Middle . .	847,000	1,425,000	1,912,000	4,184,000
South . . .	3,626,000	392,000	1,236,000	5,254,000
West . . .	2,897,000	1,311,000	2,174,000	6,382,000
Total .	7,671,000	3,837,000	5,884,000	17,392,000

States	Males	Females	Total	Ratio Males	Ratio Females	Ratio Total
New England	1,239,000	333,000	1,572,000	72	19	91
Middle . .	3,453,000	731,000	4,184,000	198	42	240
South . .	4,253,000	1,001,000	5,254,000	245	57	302
West . . .	5,800,000	582,000	6,382,000	333	34	367
Total .	14,745,000	2,647,000	17,392,000	848	152	1,000

Some of the principal States showed as follows :—

	Agriculture	Manufactures	Commerce, &c.	Total	Ratio of Workers
New York .	377,000	630,000	878,000	1,885,000	10.9
Pennsylvania	301,000	528,000	627,000	1,456,000	8.4
Illinois . .	436,000	206,000	357,000	999,000	5.8
Ohio . . .	397,000	242,000	355,000	994,000	5.8
Massachusetts	65,000	370,000	286,000	721,000	4.1
Missouri . .	355,000	110,000	228,000	693,000	4.0
Indiana . .	331,000	110,000	194,000	635,000	3.6
Georgia . .	432,000	36,000	130,000	598,000	3.5
Michigan .	240,000	131,000	198,000	569,000	3.3
Iowa . . .	304,000	70,000	154,000	528,000	3.0
Texas . . .	359,000	30,000	133,000	522,000	3.0
Kentucky .	321,000	61,000	138,000	520,000	3.0
Various . .	3,753,000	1,313,000	2,206,000	7,272,000	41.6
Total .	7,671,000	3,837,000	5,884,000	17,392,000	100.0

The classification of nationality (counting sons of foreigners as Americans) was in 1880 as follows :—

					Ratio
Americans	.	.	.	13,897,000	802
Germans	.	.	.	1,033,000	59
Irish	.	.	.	979,000	56
British .	.	.	.	467,000	26
Various	.	.	.	1,016,000	57
Total	.	.	.	17,392,000	1,000

Age and sex are classified in the following manner :—

Males				
	Under 16	16 to 60	Over 60	Total
Agriculture .	585,000	5,888,000	603,000	7,076,000
Manufactures	87,000	2,978,000	140,000	3,205,000
Commerce .	26,000	1,672,000	53,000	1,751,000
Various . .	128,000	2,447,000	138,000	2,713,000
Total .	826,000	12,985,000	934,000	14,745,000

Females				
Agriculture .	136,000	436,000	23,000	595,000
Manufactures	47,000	577,000	8,000	632,000
Commerce .	3,000	54,000	2,000	59,000
Various . .	108,000	1,215,000	38,000	1,361,000
Total .	294,000	2,282,000	71,000	2,647,000

Total				
Agriculture .	721,000	6,320,000	626,000	7,671,000
Manufactures	134,000	3,555,000	148,000	3,837,000
Commerce .	29,000	1,726,000	55,000	1,810,000
Various . .	236,000	3,666,000	176,000	4,074,000
Total .	1,120,000	15,267,000	1,005,000	17,392,000

Of the total number of workers 80 per cent. were men, 13 per cent. women, 5 per cent. boys, 2 per cent. girls.

AUSTRALIA

The Census of 1881 showed as follows :—

	Agriculture	Commerce	Mining	Various	Children and Servants	Total
New South Wales	113,000	28,000	18,000	165,000	427,000	751,000
Victoria	124,000	21,000	36,000	177,000	504,000	862,000
Queensland	33,000	6,000	11,000	42,000	122,000	214,000
South Australia	35,000	8,000	2,000	60,000	175,000	280,000
New Zealand	55,000	14,000	14,000	90,000	317,000	490,000
Tasmania	19,000	3,000	3,000	22,000	69,000	116,000
Western Australia	5,000	1,000	...	6,000	18,000	30,000
Total . . .	384,000	81,000	84,000	562,000	1,632,000	2,743,000

Under agriculture are included both tillage and pastoral pursuits. It is probable that the real number employed in such occupations in 1881 was larger than appears, say 50 per cent. more, as the numbers under "Servants" and "Various" are large. The ratios show :—

	N. S. Wales	Victoria	Queensland	South Australia	New Zealand	Tasmania	Western Australia
Agriculture	15.0	14.4	15.6	12.4	11.1	16.8	16.0
Mining . .	2.4	4.2	5.4	0.8	2.9	2.7	0.3
Sundries .	82.6	81.4	79.0	86.8	86.0	80.5	83.7
Total .	100.0	100.0	100.0	100.0	100.0	100.0	100.0

OIL

There are three principal kinds of oil—vegetable, marine, and mineral. The annual product, in gallons, is approximately as follows: vegetable, 140 millions; marine, 6 millions; mineral, 1800 millions.

The yield of oil from vegetable products is as follows:—

Pounds of Oil from 100 Lbs. of

Horse-chestnuts	.	.	6	Rape	.	.	33
Beech-mast .	.	.	16	Colza	.	.	40
Hempseed .	.	.	18	Almonds	.	.	48
European linseed .	.	.	25	Poppy	.	.	58
Indian linseed	.	.	29	Walnuts	.	.	60
Olives .	.	.	33	Castor-oil seed	.	62

2 E

The ordinary product of olive-oil is approximately as follows :—

	Tons Olives	Gallons Oil	Value, £
France . . .	170,000	12,000,000	3,300,000
Italy . . .	720,000	50,000,000	13,400,000
Spain . . .	300,000	21,000,000	5,800,000
Portugal . .	90,000	6,000,000	1,700,000
Greece . .	50,000	3,500,000	1,000,000

The production of colza in 1884 was as follows :—

	Acres	Bushels	Oil, Gallons
France . .	284,000	5,800,000	14,000,000
Belgium . .	17,000	380,000	1,000,000
Denmark .	2,500	70,000	200,000

The imports into Great Britain of palm-oil and cocoa-nut-oil have been as follows :—

Year	Tons		
	Palm	Cocoa-nut	Total
1840 . . .	15,800	2,100	17,900
1850 . . .	22,400	4,900	27,300
1860 . . .	40,200	9,700	49,900
1870 . . .	43,400	9,900	53,300
1880 . . .	51,600	15,900	67,500
1889 . . .	54,600	10,700	65,300

These figures are by Mr. Simmonds, author of *Science and Commerce*.

The annual production of marine oil is approximately as follows :—

	Annual Slaughter	Gallons Oil	Gallons per Carcass
Whales . .	1,500	3,300,000	2,200
Seals . . .	550,000	2,600,000	5
Penguins . .	1,300,000	130,000	1-10th

About 300 gallons of oil will suffice in twenty minutes to smooth the roughest sea (Admiralty experiments, Aberdeen, December 3, 1882).

The production of mineral oil is shown as follows :—

UNITED STATES

Two men boring for salt, 25 miles from Pittsburg, in 1845, struck an oil spring, which gave 40 gallons in 24 hours. The first oil company was formed at New York in 1854. A well sunk at Oil Creek, Pennsylvania, in 1859, gave 1000 gallons daily, and in a week others were sunk 600 feet, which gave 3000 gallons each in 24 hours. An oil fever ensued, and in 1860 there were 2000 wells at Oil Creek, 74 of which gave collectively 50,000 gallons daily. Down to 1889 more than 53,000 wells had been dug, the depth varying from 400 to 1200 feet, each bore costing about £800. One well in five strikes oil, and the number now working is about 6000. The total product since their discovery in 1859 has been approximately :—

Period	Millions of Gallons			Price, Cents per Gallon		Value at Pit's Mouth, £
	Raised	Exported	Home Use	Pit's Mouth	Refined	
1859–63	240	24	168	10	44	5,000,000
1864–73	2,250	900	900	5	22	23,500,000
1874–80	4,760	2,400	1,400	2½	10	24,000,000
1881–88	8,630	3,740	3,160	2⅓	9	37,300,000
30 years	15,880	7,064	5,628	...	...	89,800,000

The cost of boring wells, good and bad, was 42 millions sterling, or about 46 per cent. of the value of crude oil extracted. The market value of the refined petroleum exported or consumed in the United States was 330 millions sterling. The ordinary yield of refined oil is 80 gallons to 100 of crude petroleum.

RUSSIA

The Baku oil springs began to yield in 1863, and 363 wells have been sunk, of which 207 are working. The average depth is 550 feet, but some are only 190, others 1000 feet deep. At first the yield averaged 35 gallons of refined to 100 of crude oil, but it has since fallen to 28 gallons.

The production has been approximately as follows :—

	Millions of Gallons		Value at Pit, £
	Crude	Refined	
1863–73 . . .	120	42	2,500,000
1874–80 . . .	550	165	5,500,000
1881–89 . . .	4,510	1,300	18,000,000
27 years . . .	5,180	1,507	26,000,000

AUSTRIA

Ozokerit is a mineral oil from layers of wax found at Borislav, Galitzia. The mines are about 250 feet deep.

Year	Mines	Miners	Tons Raised	Value, £
1883 . .	1,292	3,800	4,500	210,000
1887 . .	560	4,800	5,000	210,000

GERMANY

The consumption of petroleum has increased very notably, viz. :—

Year	Tons per Annum	Year	Tons per Annum
1861–70 . .	70,000	1881–85 . .	390,000
1871–80 . .	195,000	1887 . . .	510,000

ORDERS

The principal religious Orders are the following :—

	Founded A.D.		Founded A.D.
Benedictines . .	543	Dominicans . .	1215
Carthusians .	1084	Augustinians .	1256
Carmelites .	1156	Jesuits .	1534
Franciscans .	1209	Sisters of Charity	1034

Chambers's Encyclopædia (1891) has the following regarding the Jesuits : "In 1634 the Order comprised 13,112 members, distributed all over the world in 32 'provinces.' In 1773 it counted 22,589 members, who had 930 colleges and 610 residences or missionary stations."

The Jesuit Missions of Paraguay, in the territory now called Misiones, counted in 1732 an Indian population of 30,362 families, or 141,242 souls, possessing 788,000 cows, 225,000 sheep, and 111,400 horses. The annual tribute to the King of Spain was £3000 sterling. The value of exports, such as yerba-màte, hides and timber, averaged £25,000 yearly. For military service against the Portuguese, the Indians, whenever required, had to furnish the Viceroy with a force of 3000 men, 4000 horses, and 5000 draught oxen.

The Jesuit Order counted in 1882 the following members :—

Great Britain and United States . .	1,894
Spain and South America . . .	1,933
China, India, Africa, &c. . . .	7,222
Total . . .	11,049

Respecting the other Orders the *Catholic Times* says : " During the last 600 years the Order of St. Francis has given to the Church 247 saints, 1500 martyrs, 10 popes, and 4000 archbishops and bishops ; the Order of St. Dominic, 4 popes, 80 cardinals, and 2000 bishops ; the Order of St. Benedict, 43 popes, 200 cardinals, 256 patriarchs, 600 archbishops, and 40,000 bishops, besides 25 emperors, kings, and queens who left their thrones for the cloisters of the celebrated Order."

ENGLAND

At the Dissolution Henry VIII. confiscated 608 abbeys, with an aggregate income of £141,000, equal to the rent of 720,000 acres. The number of religious houses in the United Kingdom in 1873 was :—

For men	86
For women	286
Total . . .	372

Of this total there were 256 in Ireland and 116 in Great Britain, mostly devoted to teaching the poor or caring the sick.

FRANCE

The numbers of religious of both sexes were as follows :—

1815 . . 12,200	1861 . . 108,120
1842 . . 25,000	1871 . . 97,400

The composition of the houses in 1861 was :—

	Men	Women	Total
Hospitals . . .	389	20,292	20,681
Schools	12,845	58,883	71,728
Contemplative .	4,542	11,169	15,711
Total . .	17,776	90,344	108,120

	Houses	Endowed Capital, £	Approximate Income, £
Friars	2,026	100,000	5,000
Nuns	12,004	4,100,000	205,000
Total . .	14,030	4,200,000	210,000

The estates of religious houses consist of £3,200,000 in house property and £1,000,000 in lands. The total number of religious in 1871 was 13,000 men and 84,300 women.

RUSSIA

The religious houses of the Greek Church are :—

	Houses	Religious	Aspirants
Men	484	6,800	3,470
Women . . .	198	6,037	16,018
Total . .	682	12,837	19,488

AUSTRIA

In 1880 the Orders stood thus :—

	Austria		Hungary	
	Houses	Religious	Houses	Religious
Men . . .	475	7,127	186	2,243
Women . .	429	8,727	64 .	915
Total .	904	15,854	250	3,158

The above communities possessed houses and lands valued at £4,680,000. The abbeys and convents suppressed in 1790 by Joseph II. were 359 in number.

ITALY

In 1867 the Government suppressed 4254 religious houses, containing 31,000 men and 28,250 women, whose endowed estates gave an annual income of £970,000, equal to £16 per religious. The estates were sold for £17,510,000, averaging £13 per acre. In ten years ending 1876, the Government paid to friars and nuns pensions which made up an aggregate of £6,840,000 sterling. In 1840 Rome counted 1560 priests, 2140 friars, and 1500 nuns, besides 440 ecclesiastical students. In 1830 the kingdom of Naples had 8500 friars and 8200 nuns.

SPAIN

There are four military Orders :—

Name	Commanderies	Income, £
Calatrava . . .	56	64,000
Santiago . . .	87	73,000
Alcantara . . .	37	37,000
Montesa . . .	193	196,000
Total . .	373	370,000

In 1803 there were 2923 religious houses, but in 1884, after numerous suppressions, the number had fallen to 1188, including 161 of friars, and 1027 of nuns. The numbers of religious at various dates compared thus :—

	1788	1803	1884
Friars . . .	49,270	69,700	1,684
Nuns . . .	22,230	38,400	14,592
Total . .	71,500	108,100	16,276

In 1820 the Government confiscated monastic properties to the value of £3,200,000.

BELGIUM

In 1789 there were 631 houses with 12,000 religious. The numbers in later times have been :—

	1846		1866	
	Houses	Religious	Houses	Religious
Men . . .	137	2,051	178	2,991
Women . .	642	9,917	1,144	15,205
Total .	779	11,968	1,322	18,196

The houses in 1866 were composed thus :—

Occupation	Men	Women	Total
Teaching . . .	975	7,249	8,224
Hospitals . . .	797	5,527	6,324
Various . . .	1,219	2,429	3,648
Total . .	2,991	15,205	18,196

Houses and lands held by the above communities represented a total value of £940,000, including £640,000 of charitable bequests by 2615 benefactors since 1838. According to the Census of 1880 there were :—

	Houses	*Religious*
Friars	213	4,027
Nuns	1,346	20,645
Total . .	1,559	24,672

GERMANY

The Orders in 1873 stood thus :—

	Houses	Religious
Prussia	958	9,048
Bavaria	620	6,148
Other states . .	450	4,238
Total . .	2,028	19,434

	Prussia	Bavaria	Other States
Men	1,037	1,094	457
Women . . .	8,011	5,054	3,781
Total . .	9,048	6,148	4,238

HOLLAND

In 1862 the Orders stood thus :—

	Houses	Religious
Friars	38	820
Nuns	137	2,187
Total . .	175	3,007

PORTUGAL

In 1834 the Government suppressed 750 religious houses, and seized the revenues.

SWITZERLAND

In 1871 there were :—

	Houses	Religious
Men	33	546
Women	55	2,020
Total . .	88	2,566

These houses held real estate valued at £480,000, producing an income of about £10 a year for each religious. The Capuchins numbered 235, other friars 311. The most numerous Order of nuns was Theodosians, who were 417, the Sisters of St. Francis coming next.

GREECE

There are 161 religious houses of the Greek Church, containing 2620 monks and 485 nuns.

UNITED STATES

According to a Catholic paper there are in the United States 7000 nuns in charge of schools and orphans, 3000 Sisters of Charity tending the sick, and 3000 clergy of monastic Orders doing missionary work or in colleges.

ORGANS

	Benches of Keys	Stops	Pipes
Hamburg . . .	4	70	...
Lübeck . . .	4	82	...
Cologne . .	4	104	...
Ulm . . .	4	100	6,564
Meresburg . .	4	81	5,866
Frankfort . .	3	75	...
Prague . . .	4	71	...
Stuttgart . .	4	70	...
Seville . . .	...	110	5,300
Rotterdam . .	4	75	5,700
Haarlem . . .	...	60•	4,088
San Sulpice, Paris	5	100	6,700
Albert Hall, London	4	111	...
Alexandra Palace .	4	88	...
Town-Hall, Leeds	...	100	6,500
St. George's Hall, Liverpool . .	4	100	...
Doncaster . .	...	94	...
Glasgow . .	4	64	...
Boston Music-Hall	4	89	...
Riga . . .	...	...	7,000

That of Haarlem, built in 1735, cost £12,000 ; that of Liverpool, £10,000. The proposed new organ for St. Peter's at Rome is to have 124 stops, some 32 ft. long.

OSTRICHES

The production of ostrich feathers averages as follows :—

	Lbs. Feathers	Value, £
Cape Colony . . .	260,000	1,040,000
Tripoli . . .	20,000	200,000
Egypt . . .	4,000	40,000
Morocco . . .	2,000	20,000
Buenos Ayres . .	160,000	32,000

About 35,000 birds are plucked annually at the Cape, averaging 3 lbs. per bird. In Buenos Ayres they are slaughtered, and the race is dying out.

According to Simmonds, the Buenos Ayres "rhea" is not really an ostrich at all, and the feathers are sold as "vulture feathers." He gives the exports of Cape feathers and the imports of ostrich feathers from all quarters into Great Britain thus :—

Year	Cape Export, Lbs.	Year	Great Britain Import, Lbs.	Value, £
1875 . .	50,000	1860 . .	25,000	80,000
1880 . .	160,000	1870 . .	65,000	175,000
1885 . .	250,000	1880 . .	190,000	1,010,000
1889 . .	230,000	1889 . .	150,000	400,000

P.

PALMS

The number of cocoa-nut palms given by Simmonds is :—

New Caledonia	45,000,000
Ceylon	30,000,000
Madras	11,000,000
Feejee Islands	500,000

Brazil has probably 100 millions. The betel-nut palm is also cultivated in India ; the area under this tree in Ceylon is 50,000 acres. As for the date-palm, Tunis has 2,500,000, Egypt 4,500,000, and India 13,000,000. Even in the oases of Sahara there are 16,000. See *Fruit*.

PAPER

The consumption in 1882 was estimated as follows :—

	Tons
Printing	455,000
Schools and offices . . .	160,000
Account-books . . .	55,000
Letter-paper	100,000
Wall-paper	200,000
Sundry manufactures . . .	80,000
Total . . .	1,050,000

In 1881 there were 3960 paper-mills, employing 90,000 men and 180,000 women : there were 2780 mills worked

by steam-power. The capital employed in the industry exceeded 62 millions sterling. The paper industry of the world sums up thus :—

Rag, jute, &c.	£14,000,000
Chemicals	8,500,000
Wages	9,000,000
Coal	3,400,000
Profit, interest on capital, &c. .	3,600,000
Value of paper . £38,500,000	

In 1882 the production and consumption in the several countries was stated as follows (the consumption in 1890 being probably one-fourth more) :—

	Millions Lbs.		Consumption, Lbs. per Inhab.
	Production	Consumption	
United Kingdom	470	430	12.1
France* . . .	380	330	8.4
Germany . . .	450	410	9.1
Russia	80	90	1.2
Austria	160	120	3.3
Italy	105	110	3.9
Spain	20	32	2.0
Portugal . . .	10	10	2.2
Belgium . . .	70	40	7.2
Holland . . .	16	16	4.0
Scandinavia . .	38	30	3.5
Switzerland . .	20	18	6.8
Turkey and Greece	...	12	1.2
Europe	1,819	1,648	5.1
United States . .	530	540	10.2
Canada	14	18	4.1
Spanish America	2	44	1.3
Australia . . .	...	17	6.1
Other countries .	...	98	...
Total .	2,365	2,365	...

The above total was equivalent to 1,050,000 tons, which were supposed to be produced from the following materials :—

Material	Tons Used	Tons, Paper	Ratio of Paper to Material, per Cent.
Woollen rags . .	670,000	390,000	59
Cotton rag . .	450,000	280,000	62
Linen, &c., rags .	100,000	50,000	50
Jute and sparta .	300,000	50,000	17
Wood and straw	400,000	40,000	10
Sundries . . .	2,400,000	240,000	10
Total . .	4,320,000	1,050,000	25

In 1813 Stevenson estimated the value of paper made yearly in Great Britain at one million sterling; in 1835, M'Culloch at £1,300,000. The consumption has risen twelvefold since 1840, viz. :—

Year	Tons		
	Press	Sundries	Total
1840 . . .	3,000	13,000	16,000
1864 . . .	31,000	52,000	83,000
1885 . . .	95,000	100,000	195,000

* The quantity of paper which paid excise in France in 1885 was only 217,000 tons.

In 1880–85 the paper-mills in various countries were :—

	Number	Hands	Steam, Horse-Power	Water, Horse-Power	Product, Tons
Great Britain .	354	28,000	27,000	8,000	200,000
France . . .	512	31,000	7,000	13,000	170,000
Germany . .	446	54,000	24,000	30,000	200,000

The consumption of paper for books is relatively small, only 6 per cent. of the total; the annual issue being supposed to reach 85 million volumes, which take 65,000 tons of paper, an average of 14 oz. per volume.

The first paper-mill in America was at Germantown, Pennsylvania, in 1693. There were 63 in 1787, which turned out 250 tons yearly. In 1870 one factory in Massachusetts produced 25,000 tons of writing-paper yearly, and another 100 miles a day of wall-paper.

PARIS

In 1887 this city had 82,500 houses and 2,261,000 population, including 180,000 foreigners. The streets had a length of exactly 600 miles. Total area, 18,700 acres, of which 14,500 are covered by houses, the rest being streets and squares. In the parish of the Temple there are 290 persons per acre, in that of Passy only 42; general average 116. There are 440 miles of sewers, the construction of which cost 4 millions sterling; they vary from 5 ft. to 18 ft. diameter. Water-supply averages 90 million gallons daily, there being 66,000 subscribers who pay water-rate. Gas-supply in 1888 reached 8800 million cubic feet, of which 900 millions were used for streets and public buildings. Vital statistics showed 57,000 deaths and 60,000 births, 28 per cent. of the latter being illegitimate. The hospitals admitted 131,000 patients, of whom 13,900 died, say 10½ per cent. There are 6000 police, 500 steamboats, 8000 cabs, and 1200 busses or tramcars. Food consumption was 350,000 tons of bread, 175,000 tons of meat, 24,000 tons of poultry, 5500 tons of cheese, 400 million eggs, and 104 million gallons of wine and liquors.

PARKS

The area of park to the principal cities of the United Kingdom is shown in the following table :—

Cities	Area, Acres	Park, Acres	Inhabitants to an Acre	
			Municipal Area	Park Area
Birmingham . .	8,400	211	46	1,736
Bradford . . .	7,200	215	26	889
Brighton . . .	2,400	106	45	996
Bristol	4,500	442	47	475
Dublin	10,100	1,753	31	175
Edinburgh . .	4,200	407	54	410
Glasgow . . .	6,100	447	96	1,293
Hull	3,600	26	40	4,721
Leeds	21,600	350	14	681
Leicester . . .	3,200	65	39	1,256
Liverpool . . .	5,200	525	103	1,025
London . . .	75,400	1,790	48	1,114
Manchester . .	9,500	191	77	2,846
Newcastle . .	5,400	91	27	4,199
Norwich . . .	7,500	7	11	12,175
Nottingham . .	9,900	150	17	1,129
Oldham . . .	4,700	60	24	1,855
Plymouth . . .	1,400	22	53	3,377
Portsmouth . .	4,500	31	29	8,239
Sheffield . . .	19,700	49	15	3,761
Sunderland . .	2,800	24	41	4,774
Wolverhampton	3,400	50	22	1,510

The most remarkable are :—

Name	Place	Acres
Regent's . . .	London .	450
Hyde	London .	400
Bois de Boulogne .	Paris . .	2,100
Phœnix . . .	Dublin . .	1,760
Prater . . .	Vienna . .	2,300
Royal	Munich . .	1,300
Queen's . . .	Edinburgh .	407

PARLIAMENT

That of the United Kingdom made 27,010 laws in eighty-two years, as follows :—

Period	Acts of Parliament		
	Public	Private	Total
1801-10 . . .	1,322	2,514	3,836
1811-20 . . .	1,487	2,233	3,720
1821-30 . . .	986	1,979	2,965
1831-40 . . .	1,038	1,706	2,744
1841-50 . . .	1,129	2,140	3,269
1851-60 . . .	1,158	2,057	3,215
1861-68 . . .	1,010	2,140	3,150
1869-82 . . .	1,283	2,828	4,111
82 years . . .	9,413	17,597	27,010

The following Ministers have held power since 1801 :—

Period	Premier	Months
1801-4 . .	Addington . .	38
1804-6 . .	Pitt	20
1806-7 . .	Grenville . .	14
1807-10 . .	Portland . . .	39
1810-12 . .	Perceval . . .	24
1812-27 . .	Liverpool . .	178
1827 . .	Canning . . .	4
1827-28 . .	Goderich . .	5
1828-30 . .	Wellington . .	34
1830-34 . .	Grey . . .	44
1834 . .	Melbourne . .	5
1834-35 . .	Peel . . .	4
1835-41 . .	Melbourne . .	77
1841-46 . .	Peel . . .	58
1846-52 . .	Russell . . .	68
1852 . .	Derby . . .	10
1852-55 . .	Aberdeen . .	25
1855-58 . .	Palmerston . .	37
1858-59 . .	Derby . . .	16
1859-65 . .	Palmerston . .	76
1865-66 . .	Russell . . .	8
1866-68 . .	Derby . . .	20
1868 . .	Disraeli . . .	9
1868-74 . .	Gladstone . .	62
1874-80 . .	Disraeli . . .	74
1880-85 . .	Gladstone . .	62
1885-86 . .	Salisbury . .	7
1886 . .	Gladstone . .	6
1886 . .	Salisbury . .	...

Parliament consists of 515 Lords and 670 Commons. The composition of the latter House was greatly changed in 1885 under the new Reform Act, viz. :—

	County		Borough		University		Total	
	1884	1885	1884	1885	1884	1885	1884	1885
England . . .	172	234	282	226	5	5	459	465
Wales	15	19	15	11	...	...	30	30
Scotland . . .	32	39	26	31	2	2	60	72
Ireland	64	85	37	16	2	2	103	103
United Kingdom	283	377	360	284	9	9	652	670

The French Chamber contained 97 noblemen, 116 lawyers, 57 manufacturers, 92 farmers, 48 doctors, 40 journalists, 14 engineers, 23 soldiers, 12 bankers, and 123 of various occupations in 1888.

PASSENGERS

In 1885 it was computed that 80,000 vehicles and 400,000 foot-passengers crossed the bridges of London daily.

The number of persons who crossed Waterloo Bridge in a year was as follows :—

1820 . . . 1,821,000	1850 . . . 4,295,000
1830 . . . 2,423,000	1860 . . . 4,873,000
1840 . . . 2,486,000	1863 . . . 5,145,000

At present the number will probably reach 8,000,000. In 1875 there were 7,300,000 vehicles and 38,500,000 persons that crossed London Bridge. In 1882 the ferryboats between Liverpool and Birkenhead carried 22,000,000 passengers. London has 12,000 cabs, Paris 8000 ; the former carry 90,000, the latter 60,000 passengers daily, the average fare earned being 15d. per passenger in Paris, 18d. in London. The daily earnings of a cab in London are 19s. in the season, 9s. the rest, and 12s. all the year round.

The London Omnibus Company carried as follows :—

	1888	1889
Passengers . . .	61,200,000	69,300,000
Receipts, £ . . .	400,000	430,000
Expenses . . .	375,000	395,000

The local passenger traffic of London has grown as follows :—

	Millions of Passengers Yearly		
	1864	1874	1884
Underground . .	42	65	115
Omnibus . .	11	48	75
Tramway . .	...	42	119
Total . .	53	155	309

The Underground Railway now carries 150 million persons yearly.

As regards Paris, the traffic shows thus :—

Year	Passengers	Year	Passengers
1860 . . 72,000,000	1880 . . 234,000,000
1870 . . 108,000,000	1888 . . 279,000,000

The traffic of 1880 and of 1888 was computed thus :—

	1880	1888
Tramcars and busses . .	209,000,000	241,000,000
Steamboats, &c.	25,000,000	38,000,000
Total . . .	234,000,000	279,000,000

The above does not include about 22,000,000 persons carried in cabs in 1888. The average fare paid in 1880 was about three halfpence (1.6). The passenger traffic between the various ports of the United Kingdom is not ascertained, but it is found that between domestic and foreign traffic 10,000 persons leave the ports of the United Kingdom daily. The number of pilgrims yearly to Mecca is not known, but 35,000 pass through Suez.

PATENTS

The number applied for, and that of those granted, in the United Kingdom were as follows :—

Period	Applications	Granted
1860-69	34,870	21,910
1870-79	44,950	30,360
1880-87	91,940	53,040
28 years	171,760	105,310

FRANCE

The number granted in various years was as follows :—

Year	Patents	Year	Patents
1844 . . .	625	1870 . . .	3,029
1850 . . .	1,687	1880 . . .	6,057
1860 . . .	4,606	1885 . . .	7,060

AUSTRIA

The total number granted in the Empire was :—

Period	Patents
1852-69	10,480
1870-84	24,090
33 years	34,570

BELGIUM

The returns for forty-eight years showed as follows :—

Period	Inventions	Improvements	Total
1841-60 . . .	5,879	10,651	16,530
1861-70 . . .	7,572	10,355	17,927
1871-88 . . .	30,600	25,680	56,280
48 years . . .	44,051	46,686	90,737

UNITED STATES

The records show as follows :—

Year	Applications	Granted	Fees, £
1840 . . .	735	473	8,000
1850 . . .	2,193	993	18,000
1860 . . .	7,653	4,778	53,000
1870 . . .	19,171	13,333	120,000
1880 . . .	23,021	13,917	156,000
1889 . . .	40,575	24,158	266,000

PAUPERS

It is difficult to compare the numbers in different countries. England, for example, counts the number receiving relief on 1st January; France the total of persons succoured during the year, the latter being a repetition of persons who needed relief. The following may be taken as an estimate of pauperism in 1888 :—

	Paupers	Per 100 Population	Annual Outlay, £
England . . .	810,000	2.8	8,400,000
Scotland . . .	96,000	2.4	900,000
Ireland . . .	109,000	2.3	1,400,000
France	290,000	0.8	1,500,000
Germany . . .	320,000	0.7	4,600,000
Russia	350,000	0.4	...
Austria	290,000	0.7	400,000
Italy	270,000	0.9	1,900,000
Holland . . .	88,000	2.0	510,000

In 1884 the number of paupers relieved at various capitals was as follows :—

	Paupers	Outlay, £	Per Head, £
Paris	490,000	800,000	1.6
St. Petersburg .	215,000	140,000	0.7
Berlin	310,000	370,000	1.2
Vienna	286,600	530,000	1.8

For some years back the average number of paupers receiving relief in London has been 102,000, at an outlay of more than a million sterling per annum.

UNITED KINGDOM

Official returns show as follows :—

Year	England	Scotland	Ireland	U. Kingdom	Ratio to Population			
					England	Scotland	Ireland	U. Kingdom
1850	921,000	79,000	308,000	1,308,000	5.11	2.72	4.61	4.75
1860	851,000	77,000	45,000	973,000	4.26	0.77	3.35	3.35
1870	1,079,000	126,000	74,000	1,279,000	4.69	3.78	1.38	4.06
1880	803,000	99,000	115,000	1,016,000	3.09	2.66	2.21	2.90
1889	810,000	96,000	109,000	1,015,000	2.80	2.40	2.30	2.65

Expenditure :—	1850	1860	1870	1880	1888
	£	£	£	£	£
England	5,400,000	5,450,000	7,650,000	8,020,000	8,440,000
Scotland	580,000	660,000	910,000	850,000	890,000
Ireland	1,830,000	530,000	810,000	1,190,000	1,390,000
United Kingdom . . .	7,810,000	6,640,000	9,370,000	10,060,000	10,720,000

The average outlay yearly on each pauper, and the cost per inhabitant, as regards the three kingdoms, are shown as follows :—

Year	Outlay per Pauper, £			Cost per Inhabitant, Pence		
	England	Scotland	Ireland	England	Scotland	Ireland
1850 . .	5.9	7.3	6.0	72	48	65
1860 . .	6.4	8.6	11.6	66	52	22
1870 . .	7.1	7.4	7.4	80	66	36
1880 . .	10.0	8.5	10.4	74	55	54
1889 . .	10.4	9.3	12.7	72	54	70

The amount spent annually on poor-relief in England and Wales has been at various dates as follows :—

Period	Annual Expenditure, £	Per Inhabitant, Pence	National Income, Millions £	Percentage of Burden
1702-14 . .	910,000	41	65	1.40
1760-75 . .	1,520,000	58	122	1.24
1783-93 . .	2,050,000	66	145	1.41
1801-5 . . .	5,100,000	78	180	2.80
1815-20 . .	7,106,000	152	220	3.23
1830 35 . .	6,742,000	114	385	1.75
1841-50 . .	5,250,000	74	490	1.07
1851-60 . .	5,510,000	69	580	0.95
1861-70 . .	6,740,000	77	720	0.94
1871-80 . .	7,710,000	75	935	0.82
1884-88 . .	8,400,000	73	1,084	0.78

In the period just after Waterloo the burden was five times as great as it has been in the past five years.

In 1886 the condition of the poor in the east part of London was found by school-agents to be thus :—

Class			Number	Weekly Wages, Shillings
Indigent	.	.	314,000	10 to 21
Struggling	.	.	498,000	22 to 50
Well to do	.	.	80,000	...
Total	.	.	892,000	

The above is the estimated population of the poorer parishes of London.

FRANCE

In 1886 the number of persons who received relief during the year was 1,440,000, but as the same persons probably were relieved at least five times, the actual number of such paupers would not exceed 290,000. There was much distress in 1847, when 6,000,000 were relieved—that is to say, about 1,200,000 in reality ; the sum so expended reaching 8 millions sterling, of which £4,600,000 passed through public officials and £3,400,000 was given by St. Vincent de Paul societies and other charitable associations. In 1884 the sum officially expended was as follows :—

In		£	In		£
Paris	.	800,000	Food .	.	520,000
Departments	.	660,000	Money, &c.	.	940,000
Total	.	1,460,000	Total	.	1,460,000

There are 15,000 offices all over France for poor-relief, the funds being mainly derived from a tax of 10 per cent. on tickets for theatres, and averaging £2,100,000 per annum.

GERMANY

In 1885 the sum of £4,560,000 was expended in poor-relief, viz. :—

		Paupers	Outlay, £	Per Head, £
Prussia	.	953,000	2,670,000	2.8
Bavaria	.	152,000	550,000	3.5
Saxony	.	89,000	270,000	3.1
Alsace	.	73,000	220,000	3.0
Baden	.	68,000	170,000	2.5
Wurtemburg	.	63,000	180,000	2.8
Various	.	194,000	500,000	2.6
Total	.	1,592,000	4,560,000	2.9

The number of paupers relieved in cities per 1000 of the population was as follows :—

Strasburg	.	102	Berlin .	.	.	61
Königsberg	.	84	Leipzig .	.	.	59
Bremen	.	76	Dresden	.	.	56
Frankfort	.	70	Stuttgart	.	.	51

RUSSIA

In 1884 the number of registered mendicants was 350,000 ; that of persons relieved in St. Petersburg 215,000, at an average of 14s. each.

AUSTRIA

The system of poor-relief resembles that in France, for which purpose there are 10,650 offices. In 1886 were relieved 290,000 paupers at a cost of £400,000, say 27s. each.

ITALY

According to the *Statesman's Year-Book*, there are 21,800 offices for poor-relief, endowed with funds representing a capital value of 80 millions sterling, with an annual income of £3,500,000 ; expenses of management, &c., £1,600,000 ; balance for the poor, £1,900,000. In

1881 there were 1,365,000 persons relieved ; the same remark applies as in France, and the actual number of paupers may be set down at about 270,000.

BELGIUM

The number of paupers receiving indoor relief is small, viz. :—

Year			Paupers	Outlay, £	Per Head, £
1835	.	.	2,260	11,000	4.9
1850	.	.	3,478	21,000	6.0
1870	.	.	1,925	20,000	10.4
1888	.	.	4,399	48,000	10.8

The above is the mean number in each year, the number of paupers passing through the depôts being four times as great.

HOLLAND

The number of persons relieved in the year 1881 was :—

Permanent paupers	.	.	.	.	88,300
Temporary "	.	.	.	.	128,300
Total	.	.	.		216,600

The total expenditure was £510,000, or about £2, 8s. per pauper, religious communities provided £270,000, and the civil authorities £240,000.

SWEDEN

The number of paupers compared with population thus :—

Year					Paupers	Per 100 Pop.
1860	.	.	.	.	133,000	3.5
1870	.	.	.	.	204,000	4.8
1880	.	.	.	.	220,000	5.0
1887	.	.	.	.	230,000	4.8

There are 2300 workhouses, capable of admitting 40,000 persons.

PAWN-OFFICES

The number of these offices increases in Great Britain faster than population, viz. :—

Year	No.	Per Million Inhab.	Year	No.	Per Million Inhab.
1851	. . 1,873	89	1871	. . 3,450	132
1861	. . 2,578	111	1881	. . 4,372	146

The number of pledges is said to reach 190 millions per annum.

In 1882 the loans of similar institutions, called Monts de Piété, were :—

				Borrowers	Amount
France	.	.	.	2,970,000	£2,300,000
Spain	.	.	.	235,000	985,000
Holland	.	.	.	602,000	260,000

The French returns for 1885 showed thus :—

Under 8s.	.	.	.	.	.	2,187,000
8s. to 40s.	.	.	.	.	.	715,000
£2 to £4	.	.	.	.	.	136,000
Over £4	.	.	.	.	.	71,000
Total	.	.	.			3,109,000

PEPPER

The annual production averages :—

						Tons
Sumatra	.	.	.	.	.	13,000
Siam	.	.	.	.	.	3,500
Malacca, &c.	.	.	.	.	.	6,500
Total	.	.	.			23,000

PICTURES

Raphael's " Holy Family," from the Blenheim Gallery, was sold to the National Gallery for £70,000. Millet's " Angelus " was sold at Paris for £24,000 in 1889, Millet having painted it for £72 sterling.

PINS

In 1888 the production was as follows :—

	Millions Weekly
England	280
France	120
Holland and Germany . . .	120
Total	520

Birmingham stands for 180 millions of those made in England. In 1850 the annual output in England was 1250 tons, valued at £1,100,000.

PLACARDS

The largest use on record was prior to the Paris election of 27th January 1889. General Boulanger had 15,000 billstickers, who put up 45,000 daily, in all 900,000, at a cost of £8000 sterling. Jacques had 10,000 men, who put up 25,000 daily, in all 500,000, at a cost of £5000. In some places, when they were torn down after the election, there were found sixty layers alternating of the rival placards.

POLICE

In 1881 the maintenance of police in various cities cost as follows :—

	£	Per Inhab., Pence		£	Per Inhab., Pence
London .	1,060,000	68	Genoa . .	15,000	21
Paris . .	1,160,000	122	Florence .	14,000	20
Vienna .	390,000	99	Turin . .	13,000	18
Berlin. .	70,000	16	Antwerp .	13,000	19
S. Francisco	48,000	52	Trieste . .	12,000	27
Buda-Pesth	38,000	27	Christiania.	11,000	36
Rome. .	30,000	24	Frankfort .	7,000	14
Leipsic .	24,000	49	Liege . .	6,000	12
Bucharest	22,000	26	Venice . .	6,000	12
Stockholm	21,000	33	Palermo .	6,000	6
Copenhagen	20,000	24	Stuttgart .	14,000	28

The following comparison between the police of London and Paris was published in 1881 :—

	London	Paris	Per 10,000 Inhab.	
			London	Paris
Number of men . .	10,940	8,250	29	39
Arrests made . . .	79,490	231,140	210	1,065

The London police cost £97 a year, the Paris £140, per man. The London man arrests seven persons; the Paris, twenty-nine persons, per annum. For each offender (including drunkenness and misdemeanours), the police expenditure is £13 in London, and £5 in Paris. The number of London police in 1888 was 13,900.

In the United Kingdom the number of police was as follows :—

	Number		Per 10,000 Pop.	
	1878	1888	1878	1888
England . . .	30,700	37,300	12	13
Scotland . . .	3,400	4,000	10	10
Ireland . . .	12,300	13,900	24	29
United Kingdom .	46,400	55,200	14	15

The expenditure in 1887 was as follows :—

	Amount, £	Per Policeman, £	Pence per Inhabitant
England . . .	3,700,000	98	31
Scotland . . .	380,000	92	23
Ireland. . . .	1,570,000	115	80
United Kingdom	5,650,000	102	36

In India the police number 144,000 men, of whom 46,000 carry swords, and 55,000 firearms.

POPULATION

The population of the Roman Empire at the death of Augustus, 14 B.C., was little more than that of the present German Empire, being estimated by Bodio thus :—

Italy	6,000,000
Spain	6,000,000
Greece	3,000,000
Gaul	3,400,000
Other countries	4,600,000
Europe	23,000,000
Asia	19,500,000
Africa	11,500,000
Total .	54,000,000

The population of Europe hardly exceeded 50 millions before the 15th century.

The growth of the great European Powers in the last 400 years is shown as follows :—

	1480	1580	1680	1780	1880
England	3,700,000	4,600,000	5,532,000	9,561,000	35,004,000
France	12,600,000	14,300,000	18,800,000	25,100,000	37,400,000
Prussia	800,000	1,000,000	1,400,000	5,460,000	45,260,000
Russia	2,100,000	4,300,000	12,600,000	26,800,000	84,440,000
Austria	9,500,000	16,500,000	14,000,000	20,200,000	37,830,000
Italy	9,200,000	10,400,000	11,500,000	12,800,000	28,910,000
Spain	8,800,000	8,150,000	9,200,000	9,960,000	16,290,000
Total . .	46,700,000	59,250,000	73,032,000	109,881,000	285,134,000

In the above, England at present stands for the United Kingdom, and Prussia for the German Empire.

The population of the world has been estimated as follows :—

Date	Author	Millions	Date	Author	Millions
1804	Malte-Brun .	640	1874	Behm-Wagner	1,391
1828	Balbi . . .	847	1878	Levasseur . .	1,439
1845	Michelot . .	1,009	1883	Behm-Wagner	1,433

The population of Europe, according to the best authorities, has been as follows :—

Date	Author	Population	Date	Author	Population
1762	Expilly .	130,000,000	1850	Confronti.	255,000,000
1778	Moheau .	150,000,000	1861	Hausner .	283,900,000
1800	Levasseur	175,000,000	1871	Berg-Lona	293,000,000
1828	Balbi . .	214,000,000	1882	B.-Wagner	327,800,000
1841	Berg-Lona	233,700,000	1886	Levasseur	345,700,000

The distribution of the population of the world was as follows :—

	Millions				
	1810	1825	1845	1874	1886
	Gotha	*Balbi*	*Michelot*	*Behm-Wagner*	*Levasseur*
Europe . .	180	214	245	301	347
America . .	21	40	50	85	112
Asia . . .	380	481	620	798	822
Africa . .	99	109	90	203	197
Australia .	2	3	4	4	5
Total .	682	847	1,009	1,391	1,483

Michelot's and Levasseur's estimates divide Asia and Australia differently from what is usual, including all the Malay Archipelago as Australian. Thus Levasseur would make Australia in 1886 have a population of 38,000,000 ; but if we follow the ordinary distribution, it will be as above.

The population per square mile in 1820 and 1880 stood thus :—

	1820	1880			1820	1880
U. Kingdom	172	290	Sweden . .		15	27
France . .	148	180	Norway . .		8	15
Germany . .	124	217	Denmark . .		71	127
Russia . .	20	40	Holland . .		195	312
Austria . .	99	158	Belgium . .		287	480
Italy . . .	138	247	Switzerland .		127	175
Spain . . .	58	82	Greece . .		40	84
Portugal . .	92	124	Europe . .		54	85

Levasseur's tables and the various estimates for 1890 show the population of Europe as follows :—

	1800	1830	1860	1880	1890
United Kingdom . . .	16,200,000	24,400,000	29,100,000	35,300,000	38,200,000
France	27,350,000	32,500,000	36,700,000	37,600,000	38,800,000
Germany	23,180,000	29,700,000	38,100,000	45,200,000	48,600,000
Russia	35,000,000	45,500,000	68,700,000	84,900,000	92,000,000
Austria	25,000,000	29,900,000	34,700,000	37,600,000	40,100,000
Italy	17,240,000	21,210,000	25,000,000	28,500,000	30,300,000
Spain	10,540,000	11,200,000	15,600,000	16,700,000	17,600,000
Portugal	2,930,000	3,100,000	3,600,000	4,200,000	4,700,000
Sweden	2,350,000	2,800,000	3,800,000	4,600,000	4,800,000
Norway	880,000	1,100,000	1,600,000	1,900,000	2,000,000
Denmark	930,000	1,200,000	1,600,000	2,000,000	2,100,000
Holland	2,100,000	2,600,000	3,300,000	4,000,000	4,600,000
Belgium	...	3,800,000	4,700,000	5,500,000	6,100,000
Switzerland	1,800,000	2,000,000	2,500,000	2,800,000	3,000,000
Turkey	9,500,000	9,500,000	15,500,000	8,600,000	4,500,000
Greece	...	600,000	1,100,000	1,600,000	2,200,000
Roumania	...	1,300,000	4,000,000	5,300,000	5,500,000
Servia	...	400,000	1,000,000	1,700,000	2,000,000
Bulgaria and E. R. . . .	...	...	...	2,000,000	3,100,000
Total . .	175,000,000	222,810,000	290,600,000	330,000,000	350,200,000

In the eighty years that have elapsed since 1810 the ratio of increase in each decade, including estimates for 1890, in the various countries is shown as follows :—

	Increase per 1000 Inhabitants in Decade ending							
	1820	1830	1840	1850	1860	1870	1880	1890
United Kingdom .	171	150	113	25	56	88	108	109
France . . .	47	69	51	45	27	7	11	37
Germany . .	148	112	111	80	64	78	137	74
Russia . . .	...	70	72	50	40	105	130	140
Austria . .	...	...	15	10	75	85	52	50
Italy . . .	50	95	72	74	44	72	60	60
Spain . .	45	...	65	...	100	77	35	54
Sweden . .	80	120	86	108	109	80	96	55
Norway . .	90	155	118	112	130	100	88	70
Denmark . .	...	90	80	93	140	111	101	65
Holland . .	...	...	96	68	81	80	118	135
Belgium . .	...	...	60	88	68	75	84	115
Switzerland .	...	...	95	90	46	64	67	60

The increase would have been much greater but for the tide of emigration, which took 23,400,000 persons out of Europe between the years 1816 and 1888, viz. :—

To United States .	.	.	.	.	14,963,000
To British Colonies	.	.	.	.	3,767,000
To South America	.	.	.	.	2,620,000
To other parts	.	.	.	.	2,050,000
		Total	.	.	23,400,000

The above emigration may be divided into two periods, thus :—

Period		*Emigrants*	*Average Yearly*
1816–50	. .	4,309,000	123,000
1851–88	. .	19,091,000	503,000

The above does not include about 4,800,000 persons who, without leaving Europe, migrated from their own to another country, as appears from the fact that in 1880–81 there were, according to Census returns, 3,429,000 foreigners then living in the various countries.

The relative loss or gain by emigration or immigration in recent years, as compared with the number of inhabitants, is shown as follows :—

Countries that Gained

	Increase Yearly per 1000 Pop.			Period
	Natural	Actual	Gain by Immigration	
France . . .	21	32	11	1882–86
Russia . . .	133	146	13	1871–82
Finland . . .	149	155	6	1871–80
Greece . . .	83	159	76	1870–79
Roumania . .	68	73	5	1860–84
Servia . . .	184	222	38	1879–84
United States .	206	274	68	1871–80
Australia . .	207	430	223	1876–88
Canada . . .	120	180	60	1871–80
Argentina . .	130	450	320	1880–88

PLATE VIII.

POPULATION.

Inhabitants per square mile in 1820 and 1890—Red for 1820, Green for 1890.

	1820	1890
ENGLAND	207	505
SCOTLAND	68	135
IRELAND	212	148
FRANCE	172	320
U. KINGDOM	148	184
GERMANY	124	233
RUSSIA	20	42
AUSTRIA	99	166
ITALY	138	260
SPAIN	58	86
PORTUGAL	92	136
SWEDEN	15	28
NORWAY	8	16
DENMARK	71	133
HOLLAND	195	350
BELGIUM	287	530
SWITZERLAND	127	190
GREECE	40	88
EUROPE	54	90
U. STATES	3	20

Countries that Lost

	Increase per 10,000 Population		Loss by Emigration Yearly	Period
	Natural	Actual		
England . . .	140	132	8	1871–80
Scotland . . .	134	98	36	1871–80
Ireland . . .	81	...	128	1871–80
U. Kingdom . .	131	108	23	1871–80
Germany . .	115	74	41	1881–85
Austria . . .	87	70	17	1870–80
Hungary . . .	29	16	13	1870–80
Italy	72	54	18	1871–81
Spain	75	34	41	1860–77
Portugal . . .	73	60	13	1864–77
Sweden . . .	119	87	32	1871–80
Norway . . .	122	80	42	1865–75
Denmark . .	119	92	27	1871–80
Holland . .	119	106	13	1871–80
Belgium . . .	96	77	19	1871–80
Switzerland . .	73	61	12	1871–80

The number of men capable of bearing arms, say from 15–55, and that of women of child-bearing age, say 15–45 years of age, are shown for the various countries approximately as follows :—

	Men Capable of Bearing Arms		Women of Child-Bearing Age	
	1860	1890	1860	1890
U. Kingdom	7,530,000	9,730,000	6,960,000	8,766,000
France . .	10,890,000	10,844,000	8,700,000	8,586,000
Germany . .	10,555,000	12,460,000	9,140,000	10,930,000
Russia . .	17,700,000	25,200,000	16,500,000	23,200,000
Austria . .	9,135,000	10,440,000	8,490,000	9,680,000
Italy . . .	7,020,000	8,480,000	5,670,000	6,850,000
Spain . . .	4,060,000	4,510,000	3,740,000	4,130,000
Portugal . .	860,000	1,120,000	830,000	1,080,000
Sweden . .	1,050,000	1,315,000	930,000	1,170,000
Norway . .	420,000	505,000	370,000	465,000
Denmark . .	420,000	530,000	370,000	490,000
Holland . .	880,000	1,220,000	770,000	1,070,000
Belgium . .	1,230,000	1,585,000	1,030,000	1,340,000
Switzerland .	670,000	805,000	580,000	690,000
Greece . .	300,000	590,000	250,000	490,000
Roumania .	1,040,000	1,430,000	920,000	1,260,000
Servia . .	260,000	510,000	230,000	450,000
Europe . .	74,020,000	91,274,000	65,480,000	80,647,000

It is worthy of notice that France is the only country which has fewer men and women than thirty years ago of the able-bodied ages. The following table shows the ratios of men and women of the above ages to population in the several countries :—

Per 1000 Population

	Men, 15–55	Women, 15–45		Men, 15–55	Women, 15–45
England . .	256	230	Spain . . .	260	240
Scotland .	250	230	Portugal . .	240	230
Ireland . .	247	224	Sweden . .	274	245
U. Kingdom	254	228	Norway . .	252	233
France . .	281	223	Denmark . .	260	232
Germany .	256	225	Holland . .	267	233
Russia . .	259	240	Belgium . .	260	220
Austria . .	261	242	Switzerland .	268	230
Italy . . .	280	227	Greece . .	270	225

Ireland and Portugal are lowest as regards the ratio of able-bodied men.

The *Almanach de Gotha* gives the ratio of sexes in 1884 in the various countries thus :—

Females to 1000 Males

U. Kingdom 1,047	Holland . 1,022	Canada . . 976
France . . 1,004	Belgium . 1,001	Brazil . . 938
Germany . 1,039	Switzerland 1,040	Argentina . 942
Russia . . 1,027	Servia . . 957	Chili . . . 1,004
Austria . . 1,034	Bulgaria . 952	Peru . . . 986
Italy . . . 995	Roumania . 937	Venezuela . 1,063
Spain . . 1,045	Greece . . 906	Uruguay . 934
Portugal . 1,084	Egypt . . 1,025	Colombia . 1,058
Sweden . . 1,064	Cape . . 972	Greenland . 1,134
Norway . . 1,049	India . . 944	Europe . . 1,019
Denmark . 1,035	Japan . . 973	America . 970
Finland . . 1,042	U. States . 965	Australia . 843

The latest Census returns show the ratio of foreigners in various countries thus :—

Per 1000 of Population

U. Kingdom . 4	Spain . . . 3	Belgium . . 26
France . . . 29	Sweden . . . 4	Switzerland . 74
Germany . . 6	Norway . . 20	Servia . . . 21
Austria . . . 16	Denmark . . 32	Greece . . . 19
Hungary . . 15	Holland . . 17	United States 133
Italy . . . 2		

The ratio of foreigners to population is 21 per thousand in London, 90 in Paris, 13 in Berlin, 14 in Buda-Pesth, 210 in Monte Video, and 360 in Buenos Ayres.

The population of the great cities of the world is shown as follows :—

					1831	1888
Amsterdam		.	.	.	201,000	372,000
Antwerp .		.	.	.	65,000	205,000
Belfast		.	.	.	53,000	230,000
Berlin .		.	.	.	220,000	1,438,000
Birmingham		.	.	.	142,000	448,000
Bombay .		.	.	.	229,000	773,000
Bordeaux .		.	.	.	94,000	241,000
Boston		.	.	.	61,000	363,000
Brussels .		.	.	.	102,000	462,000
Buda-Pesth		.	.	.	67,000	443,000
Buenos Ayres .		.	.	.	81,000	455,000
Cairo		.	.	.	333,000	375,000
Calcutta .		.	.	.	280,000	433,000
Constantinople .		.	.	.	590,000	874,000
Copenhagen .		.	.	.	109,000	300,000
Christiania		.	.	.	21,000	136,000
Dresden .		.	.	.	70,000	259,000
Dublin .		.	.	.	227,000	353,000
Edinburgh .		.	.	.	130,000	263,000
Florence .		.	.	.	82,000	168,000
Genoa .		.	.	.	83,000	179,000
Glasgow .		.	.	.	164,000	526,000
Hamburg .		.	.	.	112,000	306,000
Havana .		.	.	.	111,000	230,000
Leipsic .		.	.	.	42,000	170,000
Lisbon .		.	.	.	202,000	243,000
Liverpool .		.	.	.	165,000	600,000
London . .		.	.	.	1,655,000	4,283,000
Lyons .		.	.	.	146,000	402,000
Madrid .		.	.	.	205,000	387,000
Manchester .		.	.	.	238,000	604,000
Manilla .		.	.	.	134,000	270,000
Marseilles .		.	.	.	116,000	376,000
Milan .		.	.	.	125,000	321,000
Moscow .		.	.	.	308,000	753,000
Munich .		.	.	.	65,000	275,000
Naples .		.	.	.	354,000	491,000
New Orleans .		.	.	.	46,000	216,000
New York .		.	.	.	203,000	1,493,000
Palermo .		.	.	.	168,000	245,000
Philadelphia .		.	.	.	167,000	1,017,000
Prague .		.	.	.	85,000	296,000
Rio Janeiro .		.	.	.	145,000	356,000

		1831	1888
Rome	. . .	128,000	388,000
Rotterdam	. . .	66,000	194,000
St. Petersburg	. . .	324,000	843,000
Smyrna	. . .	115,000	187,000
Stockholm	. . .	79,000	222,000
Stuttgart	. . .	32,000	126,000
Turin	. . .	114,000	241,000
Tunis	. . .	108,000	210,000
Venice	. . .	110,000	151,000
Vienna	. . .	280,000	801,000
Warsaw	. . .	151,000	432,000

Dr. Beloch gives the population of ancient cities thus:—

City	Date	Population	Area, Acres	Population per Acre
Rome . .	A.D. 14	900,000	2,950	306
Thebes . .	B.C. 335	50,000	500	100
Tyre . . .	,, 332	40,000	185	210
Palermo. .	,, 254	27,000	115	230
Athens . .	,, 350	150,000	145	103
Alexandria .	,, 60	500,000	230	218

The density of population in modern cities is shown thus, according to figures for 1881 :—

	Population	Acres	Population per Acre
London . . .	3,893,000	75,000	52
Paris . . .	2,240,000	14,500	154
Berlin . . .	1,192,000	4,500	264
Vienna . . .	724,000	2,800	258
Rome . . .	273,000	800	341

The city of greatest density in the United Kingdom is Liverpool, with 106 inhabitants to the acre.

The ratios of urban and rural population are not ascertained in all countries, nor determined alike in many. Some include in the former villages and small towns. If we consider only towns of 20,000 or more inhabitants, we find as follows (1881) :—

	Number of Towns	Aggregate Population	Percentage of Total Population	
			Urban	Rural
England . .	101	11,420,000	44	56
Scotland . .	10	1,310,000	35	65
Ireland . .	9	820,000	16	84
United Kingdom	120	13,550,000	39	61
France . .	91	6,810,000	18	82
Germany . .	114	7,420,000	16	84
Russia . .	128	8,220,000	10	90
Austria . .	37	2,550,000	7	93
Italy . .	76	4,570,000	16	84
Spain . .	28	1,940,000	12	88
Portugal . .	3	420,000	10	90
Belgium . .	24	1,510,000	27	73
Holland . .	19	1,140,000	28	72
Denmark . .	2	260,000	13	87
Sweden . .	6	350,000	8	92
Norway . .	5	210,000	11	89
Switzerland .	6	230,000	8	92
Greece . .	4	100,000	6	94
Roumania . .	12	620,000	11	89
Servia . .	1	270,000	6	94
Turkey . .	4	960,000	12	88
Europe . .	680	51,130,000	15	85
United States .	102	9,160,000	18	82
Canada . .	9	370,000	9	91
Australia . .	16	710,000	25	75
Total .	807	61,370,000	15	85

UNITED KINGDOM

The kingdoms now composing the United Kingdom, according to the most reliable estimates and official returns at various periods, had the following population :—

Year	England	Scotland	Ireland	Total	Inhabitants per Square Mile		
					England	Scotland	Ireland
1066	2,150,000	350,000	1,000,000	3,500,000	37	11	32
1381	2,360,000	400,000	1,100,000	3,860,000	41	13	35
1528	4,356,000	550,000	770,000	5,676,000	75	17	24
1672	5,500,000	900,000	1,320,000	7,720,000	96	29	41
1712	6,280,000	1,050,000	2,099,000	9,429,000	110	34	66
1754	7,020,000	1,265,000	2,373,000	10,658,000	120	40	74
1780	8,080,000	1,430,000	3,050,000	12,560,000	140	47	96
1801	8,893,000	1,608,000	5,216,000	15,717,000	155	53	165
1811	10,164,000	1,806,000	5,957,000	17,927,000	175	60	189
1821	12,090,000	2,092,000	6,802,000	20,984,000	207	68	212
1831	14,001,000	2,364,000	7,768,000	24,133,000	241	77	243
1841	16,038,000	2,620,000	8,197,000	26,855,000	275	86	256
1851	18,071,000	2,889,000	6,574,000	27,534,000	310	94	205
1861	20,209,000	3,062,000	5,799,000	29,070,000	347	100	181
1871	22,857,000	3,360,000	5,412,000	31,629,000	391	110	169
1881	26,109,000	3,734,000	5,160,000	35,003,000	443	122	161
1889	29,016,000	4,077,000	4,716,000	37,809,000	500	133	150

Meantime it must be observed that the estimates for Ireland in 1754 and 1780 were much too low, since it is impossible to suppose an increase of 70 per cent. between 1780 and 1801. It is clear that the above table should be amended thus :—

Year	England	Scotland	Ireland	Total
1754 . . .	7,020,000	1,265,000	3,200,000	11,485,000
1780 . . .	8,080,000	1,430,000	4,200,000	13,710,000

The ratio of sexes at each Census stood for the United Kingdom thus :—

	1821	1831	1841	1851	1861	1871	1881
Males .	487	486	488	489	485	486	485
Females.	513	514	512	511	515	514	515
Total .	1,000	1,000	1,000	1,000	1,000	1,000	1,000

This shows an increasing preponderance of females.

The population according to sexes since 1821 has been as follows :—

Year	Males			
	England	Scotland	Ireland	U. Kingdom
1821	5,850,000	980,000	3,340,000	10,170,000
1831	6,770,000	1,110,000	3,790,000	11,672,000
1841	7,770,000	1,240,000	4,010,000	13,020,000
1851	8,780,000	1,370,000	3,190,000	13,340,000
1861	9,801,000	1,453,000	2,832,000	14,086,000
1871	11,059,000	1,603,000	2,640,000	15,302,000
1881	12,625,000	1,798,000	2,523,000	16,946,000

	Females			
1821	6,140,000	1,100,000	3,450,000	10,690,000
1831	7,120,000	1,240,000	3,970,000	12,330,000
1841	8,130,000	1,370,000	4,150,000	13,650,000
1851	9,140,000	1,510,000	3,360,000	14,010,000
1861	10,318,000	1,616,000	2,957,000	14,891,000
1871	11,653,000	1,757,000	2,773,000	16,183,000
1881	13,343,000	1,937,000	2,637,000	17,917,000

The ratios of males of working age, 15 to 55, were as follows :—

				Per 1000 Inhabitants	
				1841	1881
England	.	.	.	262	256
Scotland	.	.	.	255	250
Ireland	.	.	.	255	247

Women of child-bearing age, 15 to 45, were as follows :—

				Per 1000 Inhabitants	
				1841	1881
England	.	.	.	240	230
Scotland	.	.	.	247	230
Ireland	.	.	.	236	224

Ireland stands lowest in men and women of the most useful and productive ages, which is the result of emigration.

The principal towns of England in the 14th century (1377) were supposed to have the following population :—

London	.	35,200	Norwich	.	6,300	Newcastle	.	4,300
York	.	11,400	Lincoln	.	5,500	Oxford	.	3,800
Bristol	.	9,200	Lynn	.	5,200	Gloucester	.	3,400
Plymouth	.	7,300	Canterbury		4,700	Leicester	.	3,200
Coventry	.	7,100	Colchester	.	4,500	Shrewsbury		3,000

The twelve great towns of England have grown in this manner :—

	1801	1821	1841	1861	1887
London . .	959,000	1,379,000	1,948,000	2,804,000	4,215,000
Liverpool .	82,000	138,000	286,000	444,000	593,000
Manchester	77,000	129,000	243,000	358,000	378,000
Birmingham	71,000	102,000	183,000	296,000	441,000
Leeds . .	53,000	84,000	152,000	207,000	345,000
Sheffield. .	46,000	65,000	111,000	185,000	316,000
Bristol . .	61,000	85,000	125,000	154,000	224,000
Nottingham .	29,000	40,000	52,000	75,000	224,000
Bradford . .	13,000	26,000	67,000	106,000	224,000
Hull	30,000	45,000	67,000	97,000	199,000
Newcastle .	33,000	42,000	70,000	109,000	157,000
Brighton . .	7,000	25,000	49,000	87,000	118,000
Total .	1,461,000	2,160,000	3,353,000	4,922,000	7,434,000

The urban and rural population have been as follows :—

	Rural	Urban	Total	Rural, Ratio per Cent.
1851 . . .	8,772,000	9,156,000	17,928,000	49.0
1861 . . .	9,133,000	10,933,000	20,066,000	45.5
1871 . . .	9,802,000	12,911,000	22,713,000	43.2
1881 . . .	10,523,000	15,445,000	25,968,000	40.4

According to the Census of 1881 the population showed :—

England and Wales		Ireland		Scotland	
Natives	24,856,000	Natives	5,064,000	Natives	3,398,000
Irish .	562,000	English .	69,000	English .	92,000
Scotch .	254,000	Scotch .	22,000	Irish .	219,000
Foreign .	303,000	Foreign .	20,000	Foreign .	27,000
Total	25,975,000	Total	5,175,000	Total	3,736,000

The density of towns in England (that is, the population per acre) is shown thus :—

Norwich	. .	12	Bradford	. .	28	Bristol	. . .	49
Leeds	. . .	15	Portsmouth	.	31	London	. .	49
Sheffield	. .	16	Leicester	.	42	Plymouth	. .	54
Nottingham	.	18	Hull	. . .	42	Manchester	.	85
Oldham	. .	26	Birmingham	.	48	Liverpool	. .	106

FRANCE

According to respectable authorities and Census returns, the population was at various dates as follows :—

Year	Population	Year	Population	Year	Population
1328 .	10,000,000	1791 .	26,303,000	1851 .	35,783,000
1515 .	14,000,000	1801 .	27,350,000	1861 .	36,746,000
1599 .	16,000,000	1811 .	29,090,000	1866 .	38,067,000
1698 .	19,670,000	1821 .	30,462,000	1872 .	37,013,000
1762 .	21,770,000	1831 .	32,569,000	1881 .	37,406,000
1778 .	23,665,000	1841 .	34,230,000	1886 .	38,219,000

The area varied often from the 14th century downwards; but comparing it with population, we find at different dates the inhabitants per square mile were as follows :—

Year	Per Sq. Mile	Year	Per Sq. Mile	Year	Per Sq. Mile
1515	. . . 80	1754	. . . 96	1800	. . . 135
1600	. . . 88	1778	. . . 112	1881	. . . 180

The ratio of sexes to population showed as follows :—

Males to 1000 Females

Year	Males	Year	Males	Year	Males
1801	. . . 950	1841	. . . 976	1866	. . . 1,005
1821	. . . 945	1851	. . . 982	1876	. . . 993

Urban and rural population stood in these ratios :—

	1846	1851	1861	1872
Urban . .	244	255	289	311
Rural . .	756	745	711	689
Total .	1,000	1,000	1,000	1,000

The nine principal cities of France had the following population :—

	1801	1835	1881	1886
Paris . . .	553,000	881,000	2,226,000	2,345,000
Lyons . .	110,000	162,000	377,000	402,000
Marseilles .	111,000	125,000	360,000	376,000
Bordeaux .	91,000	110,000	212,000	241,000
Lille . . .	55,000	77,000	178,000	188,000
Toulouse .	50,000	62,000	140,000	148,000
Nantes . .	42,000	78,000	124,000	127,000
Rouen . .	48,000	91,000	106,000	107,000
Havre . .	16,000	24,000	106,000	112,000
Total .	1,076,000	1,610,000	3,829,000	4,046,000

The population of Paris has been as follows :—

Year	Population	Year	Population	Year	Population
1675	540,000	1800	547,000	1851	1,053,000
1700	720,000	1811	623,000	1861	1,697,000
1762	600,000	1831	786,000	1872	1,852,000
1789	525,000	1841	935,000	1886	2,345,000

GERMANY

Levasseur gives the following :—

Year	Population	Year	Population	Year	Population
1816	24,830,000	1840	32,786,000	1871	41,060,000
1822	27,040,000	1852	35,960,000	1880	45,234,000
1831	29,768,000	1861	38,140,000	1885	46,856,000

The German Confederation at various dates, down to its dissolution at the battle of Königgratz in 1866, showed as follows :—

States	Area, Sq. Miles		Population		
	1786	1866	1786	1815	1866
Austria	84,500	76,400	10,930,000	9,180,000	13,250,000
Prussia	46,500	72,000	4,110,000	7,920,000	14,720,000
Bavaria	22,600	29,600	2,100,000	3,560,000	4,810,000
Saxony	15,600	5,800	1,870,000	1,200,000	2,340,000
Brunswick	2,000	1,400	185,000	210,000	290,000
Wurtemberg	4,300	7,500	585,000	1,400,000	1,750,000
Hanover	...	14,900	...	1,310,000	1,920,000
Baden	...	5,900	...	1,000,000	1,430,000
Various	92,200	30,100	6,485,000	4,380,000	5,900,000
Total	267,700	243,600	26,265,000	30,160,000	46,410,000

Kelb gives the population according to sexes since 1855 as follows :—

	1855	1864	1871	1885
Males	16,185,000	17,785,000	20,250,000	22,934,000
Females	16,535,000	18,095,000	21,005,000	23,922,000
Total	32,700,000	35,880,000	41,255,000	46,856,000

	Ratio			
Males	495	495	491	489
Females	505	505	509	511
Total	1,000	1,000	1,000	1,000

The Census of 1885 may be condensed thus :—

	Males	Females	Total	No. per Sq. Mile
Prussia	13,894,000	14,425,000	28,319,000	216
Bavaria	2,639,000	2,781,000	5,420,000	192
Saxony	1,542,000	1,640,000	3,182,000	560
Wurtemberg	961,000	1,034,000	1,995,000	272
Baden	782,000	819,000	1,601,000	280
Alsace-Lorraine	771,000	793,000	1,564,000	288
Small Duchies	2,345,000	2,430,000	4,775,000	...
Total	22,934,000	23,922,000	46,856,000	230

Official records of Prussia give the population thus :—

Year	Population	Year	Population	Year	Population
1801	8,020,000	1840	14,929,000	1875	25,742,000
1816	10,349,000	1850	16,608,000	1880	27,251,000
1831	13,039,000	1861	18,497,000	1885	28,319,000

The Census of 1843 for Prussia showed as follows :—

Married	5,133,000	Urban	4,263,000
Unmarried	10,388,000	Rural	11,208,000
Total	15,471,000	Total	15,471,000

The ratio of sexes in Prussia has been as follows :—

				1810	1820	1840	1880
Males				495	495	499	492
Females				505	505	501	508
Total				1,000	1,000	1,000	1,000

The effects of the Franco-German war are visible in the increased preponderance of women in 1880. The composition of the population of Prussia as to sex and age in 1880 compared with 1843 thus :—

Age	Per 1000 Inhabitants					
	1843			1880		
	Males	Females	Total	Males	Females	Total
Under 5	76	74	150	70	69	139
5–15	99	97	196	110	109	219
15–45	242	242	484	216	225	441
45–60	54	58	112	60	65	125
Over 60	28	30	58	36	40	76
Total	499	501	1,000	492	508	1,000

The records of Bavaria, Saxony, and Hanover show thus :—

Bavaria		Saxony		Hanover	
Year	Population	Year	Population	Year	Population
1818	3,708,000	1815	1,179,000	1822	1,464,000
1843	4,440,000	1841	1,687,000	1836	1,688,000
1861	4,690,000	1861	2,225,000	1852	1,819,000
1875	5,022,000	1875	2,761,000	1862	1,958,000
1885	5,420,000	1885	3,182,000	1880	2,118,000

Since 1866 Hanover has formed a province of Prussia. The ratio of sexes in Saxony has been as follows :—

In 1815 there were 1080 females to 1000 males
In 1832   ,,   1058   ,,   1000   ,,
In 1875   ,,   1041   ,,   1000   ,,

The Census of 1885 showed the chief cities of Germany thus :—

Berlin	1,315,000	Königsberg	151,000
Hamburg	306,000	Magdeburg	143,000
Breslau	300,000	Hanover	140,000
Munich	262,000	Stuttgart	126,000
Dresden	246,000	Bremen	118,000
Leipzig	170,000	Nuremberg	115,000
Cologne	161,000	Dantzig	115,000
Frankfort	155,000	Strasburg	112,000

The records of Berlin give the population as follows :—

Year	Population	Year	Population	Year	Population
1602	8,000	1819	185,000	1861	548,000
1700	55,000	1831	249,000	1871	826,000
1787	147,000	1852	433,000	1885	1,315,000

In 1875 the population of Berlin was made up thus :—

Males	481,500	Born in Berlin	399,100
Females	477,700	,, elsewhere	560,100
Total	959,200	Total	959,200

There were 213,900 families, of whom 43,600 kept servants, the rest none.

The number of foreign residents in Germany was as follows :—

In	1871	1885
Prussia	87,000	157,000
Bavaria	39,000	62,000
Saxony	24,000	53,000
Other States . . .	57,000	101,000
Total . .	207,000	373,000

RUSSIA

M'Gregor's tables for the 17th and 18th centuries, along with later estimates for Russia and Poland, show population thus :—

Year	Population	Year	Population	Year	Population
1689 .	15,000,000	1820 .	51,500,000	1871 .	72,233,000
1762 .	25,000,000	1840 .	59,134,000	1885 .	89,680,000
1801 .	40,170,000	1858 .	64,096,000		

Kolb, however, gives the following table :—

Year	Sq. Miles	Population	Year	Sq. Miles	Population
1722	5,953,000	14,000,000	1811	7,123,000	42,000,000
1742	6,889,000	16,000,000	1829	,,	50,500,000
1762	,,	19,000,000	1838	,,	59,000,000
1782	7,123,000	27,500,000	1851	,,	65,000,000
1803	,,	36,000,000	1870	7,867,000	78,000,000

The preponderance of females is not so great as it was forty years ago, the official returns showing :—

Year	Males	Females	Females to Males
1840	28,896,000	30,238,000	1,045 to 1,000
1882	42,289,000	43,007,000	1,016 to 1,000

In 1867, on the other hand, the males preponderated in all the large cities except Warsaw, viz. :—

Females to 100 Males

Moscow . .	56	Saratov . . .	87	Kazan . . .	92
St. Petersburg	72	Riga . . .	88	Warsaw . .	112
Kiev . . .	76	Odessa . .	91		

The principal cities in 1882 showed the following population :—

St. Petersburg .	843,000	Kazan	141,000
Moscow . .	753,000	Kichinev . .	130,000
Warsaw . .	432,000	Kiev . . .	127,000
Odessa . .	240,000	Lodz . . .	113,000
Riga . . .	169,000	Saratov . . .	112,000
Kharkoff .	167,000	Tiflis . . .	104,000

In 1882 the total urban population amounted to 13,800,000 :—

4 first-class cities	2,354,000
9 second-class	1,163,000
23 third-class	1,610,000
93 fourth-class	3,100,000
164 fifth-class	2,190,000
690 villages	3,383,000
Total . . .	13,800,000

The population in 1888 was made up thus :—

Russia proper	81,700,000
Poland	7,980,000
Total . . .	89,680,000

This gave for Poland an average of 170 per square mile against 125 in 1865, in which year there were 107 females to 100 males, and the urban population was 20 per cent. of the total.

Asiatic Russia in 1801 had 3,600,000 inhabitants, and in 1883 the number was 16,400,000.

Finland is not strictly a part of the Russian Empire : its population in 1885 was 2,200,000.

The ratio of sexes and of urban population in Finland was as follows :—

Males to 1000 Females			*Percentage of Urban Population*		
Year		Males	Year		Urban
1751 .	. . .	917	1815 .	. . .	47
1800 .	. . .	949	1840 .	. . .	59
1820 .	. . .	929	1850 .	. . .	64
1840 .	. . .	940	1860 .	. . .	63
1860 .	. . .	947	1870 .	. . .	77

The advance of population in the Russian Empire since 1858 is shown as follows :—

	1858	1870	1885
Russia	59,331,000	65,705,000	81,725,000
Poland	4,765,000	6,026,000	7,960,000
Finland	1,636,000	1,774,000	2,176,000
Caucasus . . .	4,309,000	4,763,000	7,285,000
Siberia	2,936,000	3,405,000	4,314,000
Tartary	1,295,000	3,357,000	5,327,000
Total . .	74,272,000	85,030,000	108,787,000

The distribution of sexes was in 1880 as follows :—

	Males	Females	Total	Females to 100 Males
Russia and Poland	40,925,000	42,051,000	82,976,000	103
Finland . .	1,019,000	1,063,000	2,082,000	104
Caucasus .	3,352,000	2,939,000	6,291,000	88
Siberia . .	2,044,000	1,904,000	3,948,000	93
Tartary . .	2,631,000	2,445,000	5,076,000	93
Total . .	49,971,000	50,402,000	100,373,000	101

AUSTRIA

The population of the Empire, exclusive of the Italian provinces, was as follows :—

Year	Population	Year	Population
1789 . . .	18,000,000	1857 . . .	31,994,000
1810 . . .	22,420,000	1869 . . .	35,811,000
1840 . . .	32,835,000	1880 . . .	37,882,000

Year	Austria	Hungary	Total
1840 . . .	17,455,000	15,380,000	32,835,000
1857 . . .	18,225,000	13,769,000	31,994,000
1869 . . .	20,395,000	15,416,000	35,811,000
1880 . . .	22,144,000	15,738,000	37,882,000

As regards sex, the Census of 1880 compares with that of 1840 as follows :—

	1840					
	Population			Ratio		
	Austria	Hungary	Total	Austria	Hungary	Total
Males .	8,850,000	7,560,000	16,410,000	507	491	500
Females	8,605,000	7,820,000	16,425,000	493	509	500
Total	17,455,000	15,380,000	32,835,000	1,000	1,000	1,000

	1880					
	Population			Ratio		
	Austria	Hungary	Total	Austria	Hungary	Total
Males .	10,820,000	7,703,000	18,523,000	489	491	490
Females	11,324,000	8,035,000	19,359,000	511	509	510
Total	22,144,000	15,738,000	37,882,000	1,000	1,000	1,000

In 1880 the various nationalities that made up the Empire were :—

Austria		Hungary	
Germans . . .	8,009,000	Magyars . . .	6,165,000
Bohemians . .	5,181,000	Germans . . .	1,798,000
Poles	3,239,000	Slovacs . . .	1,790,000
Ruthenians . .	2,793,000	Wallacks . . .	2,324,000
Various . . .	2,922,000	Croats, &c. . .	3,661,000
Total . .	22,144,000		15,738,000

The principal cities in 1888 showed as follows :—

Vienna	801,0c0	Prague	296,000
Buda-Pesth . . .	443,000	Lemberg. . . .	110,000

The population of Vienna, including the suburbs, has been :—

Year	Population	Year	Population	Year	Population
1754 . .	175,000	1830 . .	333,000	1860 .	608,000
1800 . .	231,000	1840 . .	357,000	1880 .	1,104,000

ITALY

Estimates before 1860, and Census returns since then, gave :—

Year	Population	Year	Population	Year	Population
1800 .	13,380,000	1840 .	18,610,000	1871 .	26,801,000
1820 .	15,790,000	1858 .	24,860,000	1888 .	30,565,000

The principal cities in 1881 were as follows :—

Naples .	463,000	Turin. .	230,000	Florence.	135,000
Milan. .	320,000	Palermo .	206,000	Venice .	129,000
Rome. .	273,000	Genoa .	138,000	Bologna .	104,000

The population and sexes of Rome were as follows :—

Period	Males	Females	Total	Males to 100 Females
1716 . .	79,900	58,100	138,000	138
1777 . .	89,800	73,300	163,200	123
1872 . .	105,200	139,200	244,400	76

The population of Italy, according to sexes, was as follows :—

	Number		Ratio	
	1871	1881	1871	1881
Males . .	13,472,000	14,265,000	502	501
Females. .	13,329,000	14,195,000	498	499
Total .	26,801,000	28,460,000	1,000	1,000

The population of Milan has grown as follows :—

1780	.	.	.	133,000	1871	.	.	.	261,000
1848	.	.	.	195,000	1884	.	.	.	349,000

Its great development has been since the expulsion of the Austrians in 1867.

SPAIN

Official reports gave the population as follows :—

Year	Population	Year	Population	Year	Population
1681 .	7,500,000	1797 .	10,514,000	1860 .	15,664,000
1723 .	7,625,000	1803 .	10,351,000	1870 .	16,799,000
1769 .	9,302,000	1821 .	11,248,000	1877 .	16,754,000
1788 .	10,140,000	1837 .	12,195,000	1887 .	17,550,000

The Census of 1788 showed as follows :—

	Male	Female	Total
Unmarried . .	2,926,000	2,754,000	5,680,000
Married . . .	1,947,000	1,943,000	3,890,000
Widowed . . .	282,000	470,000	752,000
Total . .	5,155,000	5,167,000	10,322,000

The Census of 1877 showed the sexes thus :—

						Ratio
Males .	.	.	.	.	8,253,000	492
Females	.	.	.	.	8,501,000	508
Total	.	.	16,754,000			1,000

The principal cities were in 1885 as follows :—

Madrid.	.	.	387,000	Valencia	.	.	140,000
Barcelona	.	.	243,000	Seville .	.	.	131,000

PORTUGAL

Official returns are as follows :—

Year	Population	Year	Population	Year	Population
1732 .	1,770,000	1850 .	3,471,000	1878 .	4,551,000
1805 .	3,630,000	1860 .	3,608,000		

The population of Lisbon in 1878 was 243,000, and of Oporto 106,000.
The sexes stood thus :—

						Ratio
Males .	.	.	.	.	2,176,000	478
Females	.	.	.	.	2,375,000	522
Total	.	.	4,551,000			1,000

SWEDEN

The Census reports show as follows :—

Year	Males	Females	Total	Males to 1000 Females
1751 . .	841,000	945,000	1,786,000	389
1772 . .	968,000	1,057,000	2,025,000	915
1790 . .	1,033,000	1,126,000	2,159,000	918
1810 . .	1,134,000	1,244,000	2,378,000	913
1830 . .	1,391,000	1,407,000	2,888,000	928
1850 . .	1,687,000	1,795,000	3,482,000	940
1860 . .	1,874,000	1,985,000	3,859,000	944
1870 . .	2,047,000	2,152,000	4,169,000	936
1888 . .	2,301,000	2,447,000	4,748,000	941

The ratios of urban and rural population were :—

	1810	1830	1850	1875	1888
Urban . .	94	97	101	140	181
Rural . .	906	903	899	860	819
Total .	1,000	1,000	1,000	1,000	1,000

The principal cities in 1888 showed thus :—

Stockholm . . . 235,000 | Gothenburg. . . 100,000

NORWAY

Official returns give the following population :—

Year	Population	Year	Population	Year	Population
1665 . .	460,000	1825 .	1,051,000	1865 .	1,702,000
1769 . .	746,000	1845 .	1,328,000	1875 .	1,807,000
1801 . .	884,000	1855 .	1,490,000	1885 .	1,947,000

The ratio of sexes was at various dates as follows :—

	1801	1825	1845	1875
Males . .	482	485	491	488
Females. .	518	515	509	512
Total .	1,000	1,000	1,000	1,000

Urban and rural population had the following ratios :—

	1665	1801	1825	1845	1865	1875
Urban . . .	80	90	113	123	156	181
Rural. . . .	920	910	887	877	844	819
Total . .	1,000	1,000	1,000	1,000	1,000	1,000

The foreign population comprises 37,000, of whom 29,000 are Swedes. Christiania has 130,000 inhabitants.

DENMARK

The population of Denmark proper was as follows :—

Year	Population	Year	Population	Year	Population
1769	786,000	1834	1,226,000	1870	1,785,000
1787	840,000	1850	1,408,000	1880	1,969,000
1801	926,000	1860	1,608,000	1886	2,097,000

Previous to 1806 Norway was a province of the Danish monarchy, with 950,000 inhabitants.

In 1866 Denmark was stripped of Sleswig-Holstein, with 900,000 inhabitants. Iceland remains with 60,000 souls, but will soon be depopulated, the inhabitants going to Canada. The distribution of sexes in Denmark in 1880 was as follows :—

					Ratio
Males	.	.	.	967,000	492
Females	.	.	.	1,002,000	508
				1,969,000	1,000

BELGIUM

Since the Independence the Census returns show :—

Year	Population	Year	Population
1830	3,780,000	1870	5,088,000
1860	4,732,000	1886	5,910,000

In 1830 the population was distinguished thus :—

					Ratio
Urban	.	.	.	998,000	245
Rural	.	.	.	3,066,000	755
				4,064,000	1,000

In 1886 the languages spoken were :—

				Inhabitants
Only Flemish	.	.	.	2,485,000
„ French	.	.	.	2,230,000
French and Flemish	.	.	.	424,000
German and French	.	.	.	38,000
Walloon, &c.	.	.	.	733,000
Total		.	.	5,910,000

The principal cities in 1886 were as follows :—

Brussels	.	.	430,000	Ghent	.	.	.	145,000
Antwerp	.	.	205,000	Liege	.	.	.	138,000

The population of Brussels has more than trebled since 1830, official returns showing :—

1830	.	.	.	121,000	1863	.	.	.	301,000
1850	.	.	.	222,000	1884	.	.	.	421,000

The sexes in Belgium compared as follows :—

	1846	1866	1887	Ratio		
				1846	1866	1887
Males	2,164,000	2,420,000	2,983,000	499	501	499
Females	2,173,000	2,408,000	2,992,000	501	499	501
Total	4,337,000	4,828,000	5,975,000	1,000	1,000	1,000

The composition of the population of Belgium in 1880 was as follows :—

Age	Per 1000 Inhabitants		
	Males	Females	Total
Under 5	.	.	.	61	60	121
5–15	.	.	.	105	104	209
15–30	.	.	.	122	121	243
30–40	.	.	.	62	62	124
40–50	.	.	.	53	53	106
50–60	.	.	.	43	43	86
Over 60	.	.	.	53	58	111
Total	.	.		499	501	1,000

HOLLAND

Official returns show population as follows (the figure for 1785 apparently including Belgium) :—

Year	Population	Year	Population
1785	2,760,000	1859	3,309,000
1829	2,613,009	1869	3,580,000
1839	2,861,000	1879	4,013,000
1849	3,057,000	1886	4,391,000

Sexes compared as follows in 1879 and 1886 :—

	1879	1886	Ratio	
			1879	1886
Males	1,983,000	2,174,000	495	495
Females	2,030,000	2,217,000	505	505
Total	4,013,000	4,391,000	1,000	1,000

In 1886 Amsterdam had 372,000 inhabitants, Rotterdam 174,000, and Hague 139,000.

SWITZERLAND

Census returns show as follows :—

1850	.	.	.	2,393,000	1880	.	.	.	2,846,000
1870	.	.	.	2,669,000	1888	.	.	.	2,934,000

In 1860 and 1880 the ratios of sexes were as follows :—

	Number		Ratio	
	1860	1880	1860	1880
Males	1,255,000	1,395,000	495	490
Females	1,280,000	1,451,000	505	510
Total	2,535,000	2,846,000	1,000	1,000

The languages spoken in 1880 were as follows :—

					Ratio
German	.	.	.	2,031,000	71.4
French	.	.	.	608,000	21.3
Italian	.	.	.	207,000	7.3
Total	.		2,846,000	100.0

GREECE

According to Beloch, the population of Greece in the year 432 B.C. was as follows :—

		Free	Slaves	Total
Attica	.	.	235,000	100,000	335,000
Sparta	.	.	230,000	175,000	405,000
Thessaly	.	.	460,000	250,000	710,000
Macedon	.	.	400,000	25,000	425,000
Other States	.	.	721,000	455,000	1,176,000
Total	.		2,046,000	1,005,000	3,051,000

Since the Independence the population of modern Greece shows :—

Year	Population	Year	Population
1835	.	.	.	690,000	1870	.	.	1,458,000
1853	.	.	1,042,000	1879	.	.	1,980,000
1861	.	.	1,097,000	1889	.	.	2,187,000

The sexes in 1879 and 1889 stood thus :—

	1879	1889	Ratio	
			1879	1889
Males	881,000	1,133,000	525	515
Females	799,000	1,054,000	475	485
Total	1,680,000	2,187,000	1,000	1,000

TURKEY

In 1840 the population and area of the component States were :—

	Square Miles	Population	Inhabitants per Square Mile
Turkey Proper .	130,000	7,100,000	55
Moldavia and Wallachia .	44,000	1,420,000	32
Servia	12,000	380,000	32
European Turkey	186,000	8,900,000	48
Asia Minor . .	710,000	16,100,000	23
Tripoli	360,000	1,000,000	3
Egypt	480,000	3,100,000	6
Total . .	1,736,000	29,100,000	...

Since 1840 Turkey has lost Moldavia, Wallachia, Egypt, Servia, Bulgaria, Bosnia, Herzegovina, Roumelia, &c., and is at present reduced to :—

	Square Miles	Population
Turkey in Europe . .	61,000	4,490,000
Asia Minor . .	710,000	16,133,000
Total .	771,000	20,623,000

In 1880 the principal cities were the following :—

Constantinople . .	874,000	Damascus . . .	150,000
Smyrna	187,000	Bagdad	100,000

In 1888 European Turkey was supposed to have only 4,500,000 inhabitants.

EGYPT

Without including the outlying dominions, the population of Egypt proper has been officially stated thus :—

1840	3,100,000
1872	5,210,000
1882	6,818,000

The last Census showed 499 males to 501 females, viz. :—

	Number			Per 1000	
	Males	Females	Total	Males	Females
Egyptians .	3,222,000	3,258,000	6,480,000	497	503
Bedouins .	131,000	116,000	247,000	530	470
Foreigners .	49,000	42,000	91,000	538	462
Total .	3,402,000	3,416,000	6,818,000	499	501

The population of Cairo and of Alexandria was in 1882 as follows :—

	Cairo	Alexandria
Natives	353,000	178,000
Foreigners . . .	22,000	49,000
Total . .	375,000	227,000

UNITED STATES

The population of the country now known as the United States was estimated at various periods before Independence, and has been regularly taken in decennial Census since 1790.

Year	Population	Year	Population	Year	Population
1673 .	160,000	1800 .	5,308,000	1850 .	23,192,000
1701 .	297,000	1810 .	7,240,000	1860 .	31,443,000
1750 .	1,161,000	1820 .	9,655,000	1870 .	38,558,000
1775 .	2,803,000	1830 .	12,866,000	1880 .	50,156,000
1790 .	3,930,000	1840 .	17,063,000	1890 .	62,481,000

The earliest detailed records of population are as follows :—

	1701	1749	1775	1790
Massachusetts . . .	70,000	220,000	352,000	475,000
Connecticut	30,000	100,000	262,000	238,000
Rhode Island . . .	10,000	35,000	58,000	69,000
New Hampshire . .	10,000	30,000	102,000	228,000
New England . . .	120,000	385,000	774,000	1,010,000
New York	30,000	100,000	260,000	340,000
New Jersey	15,000	60,000	150,000	184,000
Pennsylvania and Delaware . . .	20,000	250,000	401,000	494,000
Maryland	25,000	85,000	255,000	320,000
Virginia	75,000	200,000	516,000	748,000
Carolinas, &c. . . .	12,000	81,000	447,000	834,000
Middle and South . .	177,000	776,000	2,029,000	2,920,000
Total . .	297,000	1,161,000	2,803,000	3,930,000

Dr. Currie's tables published in 1798 are complete as regards the 18th century, and besides the above he gives figures for the New England States in the preceding century, showing a population of 24,100 souls in 1654, and of 68,400 in 1673. It is to be observed that in the above table the column for 1775 includes 500,000 slaves, and in 1795 likewise 698,000.

The population, according to Tucker and the Census returns, was composed as follows :—

Year	White, Native	Coloured	Foreigners	Total
1800	4,262,000	1,002,000	44,000	5,308,000
1810	5,770,000	1,377,000	93,000	7,240,000
1820	7,684,000	1,772,000	177,000	9,633,000
1830	10,178,000	2,328,000	360,000	12,866,000
1840	13,336,000	2,874,000	859,000	17,069,000
1850	17,308,000	3,639,000	2,245,000	23,192,000
1860	22,801,000	4,486,000	4,139,000	31,426,000
1870	28,085,000	4,906,000	5,567,000	38,558,000
1880	36,829,000	6,647,000	6,680,000	50,156,000

The increase of population chiefly arose from the surplus of births over deaths, but was materially swelled by the number of European settlers. Tucker's tables down to 1820, and the Census returns since that year, show as follows :—

Period	Natural Increase	Immigration Increase	Total	Ratio of Increase per 1000 Pop.
1801–10	1,883,000	49,000	1,932,000	365
1811–20	2,309,000	84,000	2,393,000	330
1821–30	3,050,000	183,000	3,233,000	335
1831–40	3,602,000	595,000	4,197,000	327
1841–50	4,473,000	1,656,000	6,129,000	359
1851–60	5,624,000	2,627,000	8,251,000	356
1861–70	4,820,000	2,295,000	7,115,000	226
1871–80	8,783,000	2,815,000	11,598,000	301
1881–90	7,078,000	5,247,000	12,325,000	246
90 years	41,622,000	15,551,000	57,173,000	...

The Census Commissioner believes that the Census returns for 1870 were defective, especially in the Southern States, and that the real returns since 1860 should be read thus :—

Period	Natural Increase	Immigration	Total	Per 1000
1861–70	6,262,000	2,295,000	8,557,000	272
1871–80	7,341,000	2,815,000	10,156,000	254
1881–90	7,078,000	5,247,000	12,325,000	246

Allowing this amendment, as recommended by Commissioner Porter, the ratio of increase in each decade per 1000 inhabitants was as follows :—

	1801–10	1811–20	1821–30	1831–40	1841–50	1851–60	1861–70	1871–80	1881–90
Natural	356	318	316	280	262	242	200	181	141
Immigration . .	9	12	19	47	97	114	72	73	105
Total . .	365	330	335	327	359	356	272	254	246

The various nationalities that composed nearly 15 millions of settlers from 1820 to 1888 stood thus :—

	1821–50	1851–60	1861–70	1871–80	1881–88	Total
Germans	682,000	951,000	820,000	759,000	1,104,000	4,316,000
Irish	1,352,000	1,013,000	723,000	450,000	536,000	4,074,000
British	49,000	325,000	385,000	542,000	658,000	1,959,000
Scandinavians . .	5,000	25,000	136,000	261,000	412,000	839,000
Italians	...	9,000	13,000	61,000	201,000	284,000
French	125,000	76,000	38,000	75,000	36,000	350,000
Dutch	5,000	11,000	10,000	18,000	151,000	195,000
Swiss	4,000	25,000	24,000	31,000	68,000	152,000
Various	354,000	163,000	318,000	748,000	1,154,000	2,737,000
Total . .	2,576,000	2,598,000	2,467,000	2,945,000	4,320,000	14,906,000

There is a very marked decline of natural increase, which is now only two-thirds of the ratio that prevailed early in the century. The total immigration may be summed up thus :—

Period	Number	Per Annum
1654–1701	134,000	2,800
1702–1800	492,000	4,950
1801–20	178,000	8,900
1821–50	2,576,000	86,000
1851–80	8,010,000	267,000
1881–90	5,247,000	540,000
237 years	16,637,000	...

The number of foreign residents at each Census, and the number of those who died or left the country, are shown in the following table :—

Census Year	Number Enrolled	Immigrants of Decade	Total	Number at End of Decade	Missing
1850	2,245,000	2,598,000	4,843,000	4,139,000	704,000
1860	4,139,000	2,467,000	6,606,000	5,567,000	1,039,000
1870	5,567,000	2,945,000	8,512,000	6,680,000	1,832,000
1880	6,680,000	...	...	...	...
...	...	...	...	...	3,575,000

The number missing at the end of each decade ranged from 15 to 21 per cent.

The foreign residents found living in the United States at each Census since 1850 were as follows :—

	1850	1860	1870	1880
Germans . . .	584,000	1,276,000	1,691,000	1,967,000
Irish	962,000	1,611,000	1,856,000	1,855,000
British	380,000	588,000	766,000	916,000
Scandinavians .	18,000	73,000	242,000	440,000
Italians . . .	4,000	11,000	17,000	44,000
French	54,000	110,000	116,000	107,000
Dutch	10,000	28,000	47,000	58,000
Swiss	13,000	53,000	75,000	89,000
Various . . .	220,000	389,000	757,000	1,204,000
Total . .	2,245,000	4,139,000	5,567,000	6,680,000

The losses among Germans in the several decades were :—

Census	Resident	Immigration	Total	Number at End of Decade	Missing
1850	584,000	951,000	1,535,000	1,276,000	259,000
1860	1,276,000	820,000	2,096,000	1,691,000	405,000
1870	1,691,000	759,000	2,450,000	1,967,000	483,000
1880	1,967,000	...	...	...	...
...	...	...	...	...	1,147,000

The percentage of loss was less than among Irish, as appears from the subjoined table of all nationalities.

The loss by death or leaving the country in thirty years ending 1880 is shown as follows :—

	Germans	Irish	British	Various	Total
Number in 1850 . . .	584,000	962,000	380,000	319,000	2,245,000
Arrived, 1851–80 . . .	2,530,000	2,186,000	1,252,000	2,042,000	8,010,000
Total . .	3,114,000	3,148,000	1,632,000	2,361,000	10,255,000
Number in 1880 . . .	1,967,000	1,855,000	916,000	1,942,000	6,680,000
Loss	1,147,000	1,293,000	716,000	419,000	3,575,000

In thirty years 35 per cent. of the total either died or left the country.

The loss in the first decade ending 1860 was 17 per cent., and in the subsequent decades almost 20 per cent.

The tables as regard Irish settlers show as follows :—

Census	Resident	Immigration	Total	Number at End of Decade	Missing
1850	962,000	1,013,000	1,975,000	1,611,000	364,000
1860	1,611,000	723,000	2,334,000	1,856,000	478,000
1870	1,856,000	450,000	2,306,000	1,855,000	451,000
1880	1,855,000	...	...	...	...
	...	...	...	...	1,293,000

The loss among Irish settlers in the first decade was 18 per cent., in the second 20, and in the third 19 per cent. The war of 1861–65 apparently cost the Union 53,000 German, and 48,000 Irish settlers. According to the Census of 1880, it appeared that for every 100 foreign settlers, of whatever age, there were 124 children born in the country of foreign parents, whereas in 1870 there were only 96. It appears, moreover, that foreign settlers comprise a larger ratio of people of working age than they do of the general population, viz. :—

	Population of all Ages					
	1830	1840	1850	1860	1870	1880
Americans . .	972	950	903	868	856	867
Foreigners . .	28	50	97	132	144	133
Total .	1,000	1,000	1,000	1,000	1,000	1,000

	Population between 15 and 60					
	1830	1840	1850	1860	1870	1880
Americans . .	960	928	866	821	807	817
Foreigners . .	40	72	134	179	193	183
Total .	1,000	1,000	1,000	1,000	1,000	1,000

When the American native population would have 100 persons of working age, foreigners have 145.

The percentages of persons of working age in American and in foreign population are shown at each decade thus :—

Year	Persons between 15 and 60 Years of Age		
	Of 1000 Americans	Of 1000 Settlers	Of 1000 General Pop.
1830 . . .	504	750	511
1840 . . .	509	751	521
1850 . . .	520	748	543
1860 . . .	520	748	551
1870 . . .	527	752	559
1880 . . .	513	750	544

There was a steady rise until 1870, notwithstanding the war of 1861–65, but the last decade showed a fall, which is explained by the greater number of persons over sixty years of age, who were 56 per 1000 in 1880, against 50 in 1870. It is, nevertheless, surprising to find that the able-bodied ratio among foreign settlers is precisely the same as it was fifty years ago, and has not sensibly varied in the whole period. It has improved remarkably among the American population. If we compare the growth of the three great elements of population between 1850 and 1880, counting the children born of foreign parents as foreigners, and assuming their ratio in 1850 to have been as in 1870—that is, 96 per 100 settlers—we find as follows :—

	1850	1880	Ratio of Increase, per Cent.
American whites .	15,152,000	28,553,000	88
Coloured population	3,639,000	6,647,000	83
Foreign	4,401,000	14,956,000	240
Total . .	23,192,000	50,156,000	116

The aliquot parts of the population, always counting children of foreign parents as foreign, show as follows :—

	1800	1820	1840	1860	1880
Americans	794	781	733	602	570
Coloured population .	190	184	169	141	132
Foreign	16	35	98	257	298
Total . .	1,000	1,000	1,000	1,000	1,000

The growth of the white American and of the coloured population, in intervals of twenty years, is shown thus :—

Year	Number		Increase		Rate of Increase	
	American	Coloured	American	Coloured	American, per Cent.	Coloured, per Cent.
1800	4,220,000	1,002,000	...	...	...	...
1820	7,514,000	1,772,000	3,294,000	770,000	78	77
1840	12,511,000	2,874,000	4,997,000	1,102,000	67	62
1860	18,827,000	4,486,000	6,316,000	1,612,000	51	56
1880	28,553,000	6,647,000	9,726,000	2,161,000	52	48

The white American race increased faster than the coloured, except during the interval of 1841–60.

The total increase during eighty years was :—

| American whites | . . . | 576 per cent. |
| Coloured population | . . | 564 per cent. |

The difference is small, but the figures show conclusively that the white American race has no tendency to die out, as often stated.

The rate of increase has, however, declined very notably since 1820, both among whites and blacks, especially the latter, that among whites having been nearly stationary since 1840.

In considering the ratios of the sexes, we find the preponderance of males was very great in 1860, the year before the war, and the lowest in 1870. If the ratio in the latter year were the same as in 1860, there would have been 19,900,000 males, instead of 19,550,000. This shows a loss of 350,000 males, which may be set down as the blood-cost of the war.

It will be seen from the preceding tables that the white American population in 1880 was 28,553,000, or 57 per cent. of the total. This, however, supposes the grandchildren of European settlers to be of American race, which is not strictly true.

The Census returns give the sexes since 1790, but only for the white population down to 1810. The returns from 1820 are complete :—

Census	Males	Females	Per 1000 Population	
			Males	Females
1790	1,615,000	1,557,000	509	491
1800	2,204,000	2,100,000	512	488
1810	2,988,000	2,874,000	510	490
1820	4,896,000	4,738,000	508	492
1830	6,521,000	6,333,000	508	492
1840	8,693,000	8,381,000	509	491
1850	11,837,000	11,355,000	511	489
1860	16,061,000	15,365,000	511	489
1870	19,550,000	19,008,000	507	493
1880	25,519,000	24,637,000	510	490

It is remarkable that the relative numbers of the sexes have varied little since 1790. Meantime the ratio of females was highest in 1870, being the census year next following the war for the Union. If there had been no war, and the ratio of males in 1870 were the same as in 1860, the population for 1870 would have shown thus :—

Males 19,827,000
Females 19,008,000

Total . . 38,835,000

The actual number of males was 277,000 less, which is not surprising, since the Northern army lost 227,300 men killed or who died in hospital.

The preponderance of males has increased since 1870, due to immigration, but is still much less than in Australia, Argentina, Brazil, India or Greece (see p. 443). The sexes will probably be nearly even in 1920.

The distribution of the coloured population was at various dates thus :—

States	Number				Ratio			
	1850	1860	1870	1880	1850	1860	1870	1880
New England . .	24,000	25,000	31,000	40,000	7	5	6	6
Middle . . .	326,000	338,000	388,000	483,000	90	75	80	73
South . . .	3,153,000	3,890,000	4,173,000	5,658,000	866	868	850	851
West . . .	136,000	233,000	314,000	466,000	37	52	64	70
Total . .	3,639,000	4,486,000	4,906,000	6,647,000	1,000	1,000	1,000	1,000

This shows that the coloured population has not migrated to any extent since the emancipation of the slaves in 1861, but continues mostly in the Southern States.

The distribution of the foreign population is shown thus :—

Germans

States	Number				Ratio			
	1850	1860	1870	1880	1850	1860	1870	1880
New England . .	6,000	23,000	27,000	37,000	11	18	16	19
Middle . . .	236,000	476,000	584,000	640,000	404	373	344	325
South . . .	53,000	101,000	103,000	115,000	91	79	61	58
West . . .	289,000	676,000	977,000	1,175,000	494	530	579	598
Total . .	584,000	1,276,000	1,691,000	1,967,000	1,000	1,000	1,000	1,000

Irish

States	Number				Ratio			
New England . .	197,000	306,000	361,000	371,000	205	190	194	200
Middle . . .	552,000	801,000	890,000	865,000	574	496	480	467
South . . .	65,000	107,000	81,000	74,000	67	66	44	40
West . . .	148,000	397,000	524,000	545,000	154	248	282	293
Total . .	962,000	1,611,000	1,856,000	1,855,000	1,000	1,000	1,000	1,000

All Foreigners

States	Number				Ratio			
New England . .	299,000	469,000	648,000	793,000	133	113	116	118
Middle . . .	1,068,000	1,652,000	1,980,000	2,130,000	475	400	356	320
South . . .	176,000	292,000	290,000	341,000	78	71	52	51
West . . .	702,000	1,726,000	2,649,000	3,416,000	314	416	476	511
Total . .	2,245,000	4,139,000	5,567,000	6,680,000	1,000	1,000	1,000	1,000

This shows considerable and constant movement westward among all classes of foreigners. The percentages of native Americans and of foreigners (the children of these being counted as American) were :—

	1850				1880			
	New England	Middle	South	West	New England	Middle	South	West
Americans . .	890	838	979	874	802	820	978	820
Foreigners . .	110	162	21	126	198	180	22	180
Total . .	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

The following table shows the population of each State at three distinct periods :—

	1800	1840	1880	1890
New York . . .	589,000	2,429,000	5,083,000	5,982,000
Pennsylvania . .	602,000	1,724,000	4,283,000	5,249,000
Ohio	45,000	1,519,000	3,198,000	3,667,000
Illinois	...	476,000	3,078,000	3,819,000
Missouri . . .	...	384,000	2,168,000	2,677,000
Indiana	6,000	686,000	1,978,000	2,189,000
Massachusetts .	423,000	738,000	1,783,000	2,233,000
Kentucky . . .	221,000	780,000	1,649,000	1,855,000
Michigan . . .	...	212,000	1,637,000	2,090,000
Iowa	...	43,000	1,625,000	1,907,000
Texas	...	...	1,592,000	2,232,000
Tennessee . . .	106,000	829,000	1,542,000	1,764,000
Georgia	163,000	691,000	1,542,000	1,834,000
Virginia	880,000	1,240,000	1,513,000	1,649,000
North Carolina .	478,000	753,000	1,399,000	1,617,000
Wisconsin . . .	...	31,000	1,315,000	1,684,000
Alabama . . .	...	591,000	1,263,000	1,508,000
Mississippi . . .	9,000	376,000	1,132,000	1,285,000
New Jersey . .	211,000	373,000	1,131,000	1,441,000
Kansas	...	...	996,000	1,423,000
South Carolina .	346,000	594,000	996,000	1,147,000
Louisiana . . .	...	352,000	940,000	1,117,000
Maryland . . .	342,000	470,000	935,000	1,040,000
California . . .	...	...	865,000	1,204,000
Arkansas . . .	...	98,000	803,000	1,125,000
Minnesota . . .	...	...	781,000	1,300,000
Maine	152,000	502,000	649,000	660,000
Connecticut . .	251,000	310,000	623,000	746,000
West Virginia . .	...	...	618,000	760,000
Nebraska . . .	...	...	452,000	1,057,000
New Hampshire .	184,000	285,000	347,000	376,000
Vermont . . .	154,000	292,000	332,000	332,000
Rhode Island . .	69,000	109,000	277,000	345,000
Delaware . . .	64,000	78,000	147,000	168,000
Florida	...	54,000	269,000	390,000
Colorado . . .	...	...	194,000	411,000
Oregon . . .	...	...	175,000	312,000
Utah	...	...	144,000	206,000
Dakota	...	...	135,000	510,000
Territories . . .	13,000	50,000	564,000	1,169,000
The Union . . .	5,308,000	17,069,000	50,153,000	62,480,000

Dividing the Union into four great sections, the population stood thus at each Census :—

Year	New England	Middle States	South	West	Total
1790	1,010,000	1,342,000	1,580,000	...	3,932,000
1800	1,233,000	1,807,000	2,214,000	54,000	5,308,000
1810	1,472,000	2,479,000	2,997,000	292,000	7,240,000
1820	1,659,000	3,194,000	3,932,000	849,000	9,634,000
1830	1,954,000	4,138,000	5,164,000	1,610,000	12,866,000
1840	2,236,000	5,088,000	6,367,000	3,378,000	17,069,000
1850	2,724,000	6,593,000	8,288,000	5,587,000	23,192,000
1860	3,145,000	8,294,000	10,297,000	9,707,000	31,443,000
1870	3,506,000	9,770,000	11,330,000	13,952,000	38,558,000
1880	4,010,000	11,757,000	15,254,000	19,135,000	50,156,000
1890	4,691,000	14,110,000	18,283,000	25,396,000	62,480,000

At the beginning of the century there were only four towns that had more than 20,000 inhabitants : in 1880 there were 102, viz. :—

Population	1800	1820	1840	1860	1880
Over 100,000	0	2	4	9	20
50 to 100,000	2	1	1	9	16
20 to 50,000	2	2	16	25	66
Total . .	4	5	21	43	102

The aggregate of urban compared with total population in the United States was as follows :—

	Urban	Total	Ratio of Urban
1800	340,000	5,310,000	6.4
1820	460,000	9,640,000	4.8
1840	1,550,000	17,070,000	9.1
1860	4,240,000	31,440,000	13.5
1880	9,160,000	50,310,000	18.2

The urban class comprises only towns over 20,000 population.

The principal cities showed at various dates thus :—

Year	New York	Philadelphia	Boston	Baltimore	New Orleans	Cincinnati	Chicago
1730	8,600	12,000	11,500	...	...	...	...
1750	10,000	18,000	14,000	...	...	...	...
1790	33,000	44,000	18,000	13,800	...	...	...
1800	60,000	69,000	25,000	26,000	...	...	...
1810	96,000	95,000	33,000	36,000	17,000	3,000	...
1820	124,000	113,000	43,000	63,000	27,000	10,000	...
1830	203,000	161,000	61,000	81,000	46,000	25,000	...
1840	313,000	220,000	93,000	102,000	102,000	46,000	4,500
1850	516,000	340,000	137,000	169,000	116,000	115,000	30,000
1860	814,000	568,000	178,000	214,000	171,000	160,000	109,000
1870	942,000	674,000	251,000	267,000	191,000	216,000	299,000
1880	1,207,000	847,000	363,000	332,000	216,000	256,000	503,000
1888	1,493,000	1,017,000	...	...	...	...	...

AUSTRALIA

The population was at various dates as follows :—

1800 . . .	6,500	1860 1,224,000
1820 . . .	35,600	1870 1,900,000
1840 . . .	257,000	1880 2,725,000
1850 . . .	510,000	1888 3,672,000

The ratio of increase was :—

1851–60	. . . . .	140 per cent.
1861–70	. . . . .	55 ,,
1871–80	. . . . .	43 ,,
1881–88	. . . . .	33 ,,

The several Colonies since 1850 stood thus :—

	1850	1860	1870	1880	1888
N. S. Wales	189,000	349,000	499,000	742,000	1,086,000
Victoria . .	76,000	538,000	727,000	860,000	1,091,000
S. Australia	99,000	124,000	184,000	268,000	313,000
Tasmania .	70,000	88,000	101,000	115,000	146,000
New Zealand	63,000	79,000	248,000	485,000	607,000
Queensland	...	28,000	116,000	226,000	387,000
W. Australia	13,000	16,000	25,000	29,000	42,000
Total .	510,000	1,222,000	1,900,000	2,725,000	3,672,000

Mr. Coghlan compares 1860 and 1888, to show the natural increase from excess of births over deaths, and the net immigration into each Colony in that interval, viz. :—

	1860–1888		
	Natural Increase	Immigration	Total Increase
New South Wales . .	415,000	322,000	737,000
Victoria	431,000	122,000	553,000
South Australia . . .	150,000	39,000	189,000
Tasmania	53,000	5,000	58,000
New Zealand	262,000	266,000	528,000
Queensland	103,000	256,000	359,000
West Australia . . .	13,000	13,000	26,000
Total . .	1,427,000	1,023,000	2,450,000

The Census of 1881 showed the population to be compared thus :—

	Total	N. S. Wales	Victoria	South Australia	Tasmania	New Zealand	Queensland	Western Australia
Australian	60.8	62.2	57.9	59.8	69.1	45.6	40.4	59.8
English	18.2	14.7	17.1	21.1	15.0	24.7	17.5	22.8
Irish . .	9.6	9.2	10.1	6.5	6.2	10.1	13.3	10.0
Scotch .	5.5	3.3	5.6	3.8	3.2	10.8	4.6	2.5
Various .	5.9	10.6	9.3	8.8	6.5	8.8	24.2	4.9
Total .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The ratio of sexes since 1861 showed as follows :—

	Number			Ratio		
	1861	1871	1887	1861	1871	1887
Males .	731,000	1,094.000	1,929,000	576	552	543
Females .	536,000	885,000	1,622,000	424	448	457
Total .	1,267,000	1,979,000	3,551,000	1,000	1,000	1,000

The disparity of the sexes is diminishing year by year. It is nevertheless more remarkable in some of the Colonies than in others, the figures for 1887 being as follows :—

	Males	Females	Females to 100 Males
New South Wales .	574,000	469,000	82
Victoria . . .	550,000	486,000	88
South Australia .	165,000	152,000	92
Western Australia .	24,000	17,000	71
Tasmania . . .	76,000	66,000	88
New Zealand . .	325,000	279,000	86
Queensland . . .	215,000	153,000	74
Total . .	1,929,000	1,622,000	84

Mr. Coghlan gives the male population of working age (20 to 60) in the seven Colonies as follows :—

		Ratio
Victoria	211,000	29.2
New South Wales .	200,000	27.6
New Zealand . .	135,000	18.6
South Australia .	74,000	10.2
Queensland . .	69,000	9.5
Tasmania . .	26,000	3.6
Western Australia .	9,000	1.3
Total . .	724,000	100.0

The population of the cities has been as follows :—

	1841	1861	1871	1881	1889
Melbourne	4,000	140,000	207,000	283,000	458,000
Sydney .	39,000	94,000	135,000	224,000	382,000
Adelaide .	5,000	18,000	60,000	104,000	122,000
Brisbane .	...	6,000	15,000	31,000	87,000
Auckland .	...	10,000	30,000	50,000	62,000
Wellington	...	5,000	10,000	21,000	33,000
Hobart .	10,000	19,000	19,000	21,000	35,000
Perth . .	2,000	3,000	5,000	6,000	9,000
Total .	60,000	295,000	481,000	740,000	1,188,000

There are twenty minor towns, with an aggregate population of 355,000 souls, making a total urban population of 1,543,000, or 40 per cent. of the total.

CANADA

The population of Canada, including Nova Scotia, Newfoundland, &c., has been as follows :—

Year	Population	Year	Population	Year	Population
1665 . .	3,200	1800 .	476,000	1860 .	3,360,000
1695 . .	13,700	1820 .	840,000	1870 .	3,830,000
1726 . .	29,400	1830 .	910,000	1880 .	4,500,000
1736 . .	39,000	1840 .	1,690,000	1887 .	5,020,000

The Census of 1881 showed the population of Canada thus :—

	Number	Ratio
French Canadians .	1,299,000	30.0
Irish . . .	957,000	22.2
English . .	881,000	20.4
Scotch . . .	700,000	16.2
Germans . . .	254,000	5.9
Indians . . .	109,000	2.5
Various . . .	125,000	3.0
Total . .	4,325,000	100.0
Males	2,189,000	506
Females . . .	2,136,000	494
Total . .	4,325,000	1,000

MEXICO

The Census of 1882 showed as follows :—

Sex		Ratio	Race		Ratio
Males .	5,070,000	485	White . .	1,980,000	18.9
Females .	5,375,000	.515	Indian, &c.	8,465,000	81.1
Total	10,445,000	1,000	Total .	10,445,000	100.0

The city of Mexico has 350,000, Puebla 112,000 inhabitants. An official return in 1837 gave the population of Mexico as 7,557,000, and another in 1857 as 7,995,000.

CHILE

According to Census returns the population was :—

1865	1,811,000
1875	2,076,000
1885	2,548,000

The Census of 1885 was as follows :—

		Ratio
Males . . .	1,284,000	504
Females . . .	1,264,000	496
Total .	2,548,000	1,000

Santiago had 189,000, Valparaiso 105,000 inhabitants. There were 87,000 foreign residents, including 35,000 Peruvians, 13,000 Bolivians, 7000 Germans, and 4000 Italians.

BRAZIL

The Census of 1883 compares with that of 1872 thus :—

	1872	1883
Free	8,420,000	10,684,000
Slaves	1,511,000	1,319,000
Total .	9,931,000	12,003,000

The sexes in 1872 stood as follows :—

	Free	Slaves	Total	Ratio Free	Ratio Slaves	Ratio Total
Males .	4,319,000	805,000	5,124,000	503	533	516
Females .	4,101,000	706,000	4,807,000	497	467	484
Total .	8,420,000	1,511,000	9,931,000	1,000	1,000	1,000

In 1872 there were 244,000 foreign residents, including 121,000 Portuguese, 46,000 Germans, besides Italians, French, &c.

The population was classified thus :—

		Ratio
Europeans . . .	244,000	2.5
White Brazilians .	3,543,000	35.7
Mulattoes . .	3,802,000	38.2
Negroes . . .	1,954,000	19.6
Indians . . .	388,000	4.0
Total .	9,931,000	100.0

ARGENTINA

The population has trebled in thirty years, viz. :—

	1857	1869	1886
Buenos Ayres . .	277,000	495,000	1,085,000
Upper Provinces . .	883,000	1,342,000	2,009,000
Total . .	1,160,000	1,837,000	3,094,000

Estimates for 1886 compare with the Census returns of 1869 as follows :—

	Number 1869	Number 1886	Ratio 1869	Ratio 1886
Italians	71,000	530,000	3.8	17.1
French	32,000	120,000	1.8	3.9
Spaniards	34,000	140,000	1.9	4.5
British and Irish . .	11,000	30,000	0.6	1.0
Germans, Swiss, &c. .	64,000	100,000	3.5	3.2
Argentines	1,625,000	2,174,000	88.4	70.3
Total . .	1,837,000	3,094,000	100.0	100.0

In 1869 the sexes stood thus :—

		Ratio
Males	898,000	515
Females	846,000	485
Total . .	1,744,000	1,000

In 1886 the population appears to have been composed as follows :—

		Ratio
Europeans . . .	920,000	29.7
Children of settlers .	1,250,000	40.6
Argentines . . .	924,000	29.7
	3,094,000	100.0

A Census taken in the city of Buenos Ayres in 1887 showed 435,000 inhabitants, against 178,000 in 1869.

CHINA

According to different authorities we find as follows :—

Year	Population	Year	Population
1736 . .	125,046,000	1812 . .	360,280,000
1792 . .	307,467,000	1877 . .	381,600,000

Probably the figures for 1736 were much too low, or applied only to a part of the Empire. The population of eight cities in 1877 was stated thus :—

Pekin . . .	1,600,000	Shanghai . .	355,000
Canton . .	1,600,000	Ningpo . .	240,000
Tientsin . .	950,000	Takao . . .	235,000
Hankow . .	750,000	Tchinkiang .	135,000
Foochoo . .	630,000		

The number of foreign residents is only 6000, of whom 2500 are British, 800 Americans, 600 Germans, and 400 French.

The occupations of the natives are as follows :—

Per 1000 of the Population

Agriculture .	100	Bricklayers . .	10	Blacksmiths .	7
Washing . .	10	Carpenters . .	10	Sundry . . .	863

JAPAN

The Census of 1888 showed as follows :—

		Ratio
Males	20,008,000	505
Females	19,599,000	495
	39,607,000	1,000

There were 7,803,000 houses, and 7,420,000 married couples.

The principal cities are as follows :—

	Population		Population
Tokio . . .	903,000	Kioto . . .	255,000
Osaka . .	353,000	Nagoya . .	127,000

There are 3000 foreign residents including 1400 British and 600 Americans.

POST-OFFICE

The total traffic in 1888 may be approximately summed up thus :—

	Millions Letters and Cards	Millions Papers, &c.	Millions Total	Postal Revenue, £
United Kingdom	1,759	542	2,363	11,200,000
Continent . . .	3,727	3,147	6,874	31,200,000
United States .	2,300	4,728	7,028	11,700,000
South America .	125	105	230	1,100,000
British Colonies .	570	210	780	3,200,000
Various . . .	146	27	173	700,000
Total . .	8,569	8,759	17,448	59,100,000

In the above postal revenue are included, moreover, the receipts for telegraphic service, except in the case of the United States and those other countries where the telegraphs are mostly owned by companies.

Postal traffic increased 95 per cent. in seven years, viz. :—

	Millions of Letters, Papers, &c. 1881	Millions of Letters, Papers, &c. 1888
United Kingdom . .	1,682	2,363
Continental	4,536	6,874
United States . . .	2,243	7,028
British Colonies . .	287	780
South America . . .	54	230
Various	86	173
Total . .	8,888	17,448

The following table gives a general view of the traffic in 1888, or latest year published :—

	Millions					Average per Inhabitant	Postal Revenue, £
	Letters	Cards	Papers	Sundries	Total		
U. Kingdom	1,558	201	152	452	2,363	60	11,200,000
France . .	672	41	402	408	1,523	39	6,500,000
Germany .	956	296	725	511	2,488	53	11,400,000
Russia . .	153	18	106	49	326	4	2,600,000
Austria . .	611	122	147	80	960	24	4,000,000
Italy . . .	178	48	181	69	476	16	2,300,000
Spain. . .	102	1	21	...	124	7	...
Portugal. .	20	3	17	...	40	9	...
Sweden . .	60	...	46	...	106	22	340,000
Norway . .	18	1	16	3	38	19	190,000
Denmark .	42	...	4	4	50	25	380,000
Holland . .	66	27	83	4	180	40	600,000
Belgium . .	107	27	96	60	290	49	750,000
Switzerland .	105	17	80	19	221	74	...
Greece . .	6	...	6	...	12	6	30,000
Roumania .	16	3	6	...	25	5	180,000
Servia . .	8	...	. 1	...	9	4	30,000
Bulgaria . .	3	...	2	1	6	2	20,000
Europe . .	4,681	805	2,091	1,660	9,237	25	...
U. States .	2,300	...	1,500	3,228	7,028	110	11,700,000
Canada . .	93	19	66	21	199	40	620,000
Mexico . .	13	...	25	...	38	4	...
Venezuela .	4	...	...	...	4	2	...
Peru . . .	2	...	...	...	2	1	...
Chili . . .	41	...	...	...	41	14	...
Argentina .	40	...	37	...	77	20	...
Uruguay . .	6	...	14	...	20	30	...
Brazil. . .	18	1	29	...	48	4	200,000
America . .	2,517	20	1,671	3,249	7,457	75	...
Australia .	175	...	95	24	294	82	1,200,000
India . . .	274	...	...	...	274	1	1,200,000
Japan . . .	77	40	18	2	137	4	400,000
Java . . .	5	...	3	...	8	...	...
Persia . .	2	...	...	...	2	...	...
Egypt . .	13	...	4	...	17	3	90,000
Algeria . .	10	...	...	...	10	3	...
Cape Colony	8	...	4	...	12	11	150,000
The World	7,762	865	3,886	4,935	17,448	25	...

In the preceding table post-cards are in many cases included with letters. As regards the United States, the official table gives no more than the total of letters, papers, and parcels, but the figures given above may be taken as a fair estimate, the returns for 1881 having shown 1155 million letters and cards and 761 million newspapers.

A summary of postal traffic in Europe in 1883 was published at Florence in 1885, which compares with the figures given above for 1888 as follows :—

Year	Millions					Postal Revenue, £
	Letters	Cards	Papers	Sundries	Total	
1883	3,683	546	1,672	1,046	6,947	38,150,000
1888	4,681	805	2,091	1,660	9,237	42,500,000

In 1883 there were in Europe 65,500 post-offices, 41,150 telegraph offices, and 225,000 letter-boxes. The postal service employed 356,000 men, and carried (Europe only) 800,000 tons of letters, papers, &c., according to the Florentine writer. In 1879 there were, says Fischer, 70 regular lines of mail-steamers, 26 British, 11 German, 11 French, 6 Dutch, 6 American, 5 Italian, and 5 Austrian. The amount represented by money orders transmitted through countries of the Postal Union in 1887 was 480

millions sterling; the value of goods sent through the parcel-post, 540 millions sterling.

Telegraphs have increased in late years with great rapidity, as shown thus :—

	Miles			Messages, Millions	
	1858	1870	1888	1870	1888
United Kingdom	10,000	24,000	30,700	10	58
France . . .	8,000	25,600	58,500	6	28
Germany . . .	9,500	20,400	57,700	9	24
Russia	5,000	29,200	92,700	3	11
Austria . . .	6,500	22,000	38,200	5	13
Italy	2,500	11,100	21,100	2	9
Spain & Portugal	1,000	9,000	14,700	2	5
Scandinavia . .	2,400	9,000	14,500	2	5
Holland . . .	700	1,700	3,100	2	4
Belgium . . .	900	2,700	4,200	2	7
Switzerland . .	1,600	3,200	4,400	2	3
Roumania, &c. .	300	8,400	28,200	1	3
Europe . . .	48,400	166,300	368,000	46	170
United States .	35,000	54,100	200,000	9	57
Canada . . .	5,000	8,000	29,500	1	4
South America .	5,000	17,000	61,500	3	11
Australia . . .	1,600	15,000	39,200	2	11
India	4,800	14,500	31,900	1	3
Japan	...	...	6,200	...	3
Java	...	...	6,600	...	1
Persia	...	...	3,800	...	1
Egypt	...	3,100	6,500	...	1
Algeria . . .	...	2,000	6,700	...	2
Cape Colony .	...	600	4,400	...	1
Various . . .	...	400	3,500	...	1
The World . .	99,800	281,000	767,800	62	266

The following is the summary of a report published in 1886 on the progress of telegraphs in Europe only, from 1860 to 1885 :—

Year	Miles	Offices	Messages
1860 . . .	78,000	3,500	9,000,000
1865 . . .	110,000	7,800	21,000,000
1870 . . .	170,000	13,400	39,000,000
1875 . . .	210,000	26,100	79,000,000
1880 . . .	260,000	34,000	90,000,000
1885 . . .	315,000	45,000	118,000,000

The number of messages for 1870 is too low; perhaps official messages were not counted; but even this would not wholly explain the deficit. According to Mr. Preece, the telegraph system of the world in 1886 was summed up thus :—

	Miles	Cost, £
Land lines	714,000	51,700,000
Company cables	107,550	36,000,000
Government cables . . .	12,520	3,700,000
Total . . .	834,070	91,400,000

In 1888 the mileage was considerably higher, and at the value expressed above would stand thus :—

	Miles	Cost, £
Land lines . . .	768,000	55,500,000
950 cables . . .	132,000	44,000,000
Total . .	900,000	99,500,000

Mr. Preece shows that the maximum speed of transmission has been thus :—

Year	Words per Minute
1870	80
1880	200
1885	350
1887	600

Six messages can now go on one wire simultaneously.

The time occupied in sending a message from London to various parts of the world is as follows :—

To	Minutes	To	Minutes
Egypt .	20	China . . .	120
Bombay . .	50	Australia . .	160

The following table shows the number of post and telegraph offices, of employees, the average receipt on each telegram, and on every 100 letters or papers sent :—

	Post-Offices	Telegraph Offices	Em-ployees	Tele-grams	Per 100 Letters, &c.
	1888	1888	1881	Pence	Pence
U. Kingdom	17,800	7,030	74,000	8	88
France . .	6,930	8,000	49,000	9	88
Germany .	20,660	13,400	79,000	12	82
Russia . .	5,430	3,780	15,000	22	111
Austria . .	8,670	5,240	19,000	12	87
Italy . . .	5,300	4,060	16,000	16	86
Spain . . .	3,070	950	7,400	16	...
Portugal . .	1,640	275	1,300	10	...
Scandinavia	3,770	1,560	5,700	11	67
Holland . .	1,650	600	4,100	6	66
Belgium . .	820	1,530	4,400	4	52
Switzerland .	815	1,330	5,700	10	...
Greece . .	250	170	200	9	66
Roumania .	300	360	1,400	...	122
Bulgaria . .	110	106	400	...	80
Servia . .	90	118	400	...	77
Turkey . .	1,150	670	...	...	...
Europe . .	79,455	49,179	283,000	11	82
U. States .	59,000	19,700	...	19	40
Canada . .	7,840	2,230	...	...	72
Australia .	5,610	1,750	...	15	50
India . . .	16,970	750	...	7	110
Japan . .	4,800	230	...	12	55
Total .	173,675	73,839	...	...	...

UNITED KINGDOM

The importance of the post-office at successive dates may be judged by its receipts, viz. :—

Year	Receipts, £	Pence per Inhabitant
1663	22,000	1
1685	65,000	3
1707	111,000	5
1744	235,000	7
1790	480,000	12
1835	2,353,000	22
1889	10,340,000	66

The following were the charges on letters at three distinct epochs :—

London to	Pence		
	1645	1835	1889
York . . .	6	11	1
Edinburgh . .	8	13	1
Dublin . . .	...	16	1
Madrid . . .	...	26	$2\frac{1}{2}$
New York . .	...	26	$2\frac{1}{2}$
Rio Janeiro . .	...	42	4

The inland postal tariff from 1710 to 1840 was as follows :—

Miles	Pence		
	1710	1783	1812–40
Under 15 . . .	3	2	4
15–30 . . .	3	3	5
30–50 . . .	3	4	7
50–80 . . .	3	4	8
80–120 . . .	4	5	9
Over 120 . . .	4	6	10–16

The number of letters yearly passing through the United Kingdom was :—

Year	Millions Yearly Average			
	England	Scotland	Ireland	Total
1839	65	8	9	82
1841–45 . . .	179	24	24	227
1851–55 . . .	330	41	39	410
1861–65 . . .	534	61	53	648
1871–75 . . .	772	85	68	926
1881–85 . . .	1,082	116	85	1,283
1889	1,327	136	95	1,558

The annual number of letters was about 1,500,000 under Charles II., 8,000,000 under George II., and 20,000,000 at the beginning of the wars with Bonaparte.

In 1881 the number of letters, papers, &c., which passed through the British post-office was 1682 millions, viz. :—

	Millions of Letters, Papers, &c.			Ratio
	Received from	Sent to	Total	
United Kingdom .	1,526	1,526	1,526	90.7
America	22	22	44	2.6
European Continent	37	44	81	4.8
The East	4	9	13	0.8
Australia	4	6	10	0.6
Africa	2	6	8	0.5
Total . .	1,595	1,613	1,682	100.0

The following table, comparing the number of letters in the United Kingdom and France, was published in 1882 :—

Period	Annual Average, Millions		Number per Inhabitant	
	U. Kingdom	France	U. Kingdom	France
1841–50 . .	277	122	10	4
1851–60 . .	466	210	17	6
1861–70 . .	724	340	24	9
1881	1,299	595	37	16

The letters and papers despatched from the United Kingdom in 1888 showed this ratio :—

To	
France	21.3
United States	19.4
Germany	16.7
Colonies	16.4
Various	26.2
Total . . .	100.0

In nine years the postal traffic rose 50 per cent., viz. :—

	1880	1889
	Millions	Millions
Letters	1,128	1,558
Cards	114	201
Books, &c. . . .	214	452
Papers	131	152
Total . .	1,587	2,363

In 1889 the British post-office left a net profit of £3,000,000, against £400,000 in 1855 and £1,800,000 in 1875.

The telegraphs showed as follows :—

Year	Miles of Wire	Stations	Messages
1851 . . .	7,303	198	48,000
1862 . . .	57,879	1,616	2,676,000
1872 . . .	87,719	5,179	15,502,000
1881 . . .	121,052	5,637	31,345,000
1889 . . .	183,500	7,030	58,000,000

The following table shows the increase, in ten years, in letters and telegrams for the three kingdoms :—

	Letters, Millions		Letters per Inhab.	
	1879	1889	1879	1889
England . . .	922	1,327	37	46
Scotland . . .	99	136	27	33
Ireland . . .	76	95	14	20
United Kingdom .	1,097	1,558	32	41

	Telegrams		Per Inhab.	
	1879	1889	1879	1889
England . .	20,400,000	48,500,000	0.8	1.7
Scotland . .	2,500,000	6,000,000	0.7	1.5
Ireland . .	1,600,000	3,200,000	0.3	0.7
U. Kingdom .	24,500,000	57,700,000	0.7	1.5

The number and amount of postal and money orders issued in the United Kingdom were as follows :—

Year	Number	Amount, £
1880	17,300,000	26,400,000
1889	50,800,000	42,700,000

The parcel post, begun in 1883, showed as follows :—

Year	Number	Weight, Tons	Receipts, £	£ per Ton	Paid to Railways, £
1884	22,100,000	19,700	490,000	25	250,000
1888	38,800,000	40,900	860,000	21	425,000

Official returns of postal revenue and expenditure show as follows :—

Period	Revenue, £	Expenditure, £	Profit, £
1865–69 . .	22,200,000	15,400,000	6,800,000
1870–74 . .	28,000,000	21,000,000	7,000,000
1875–79 . .	36,400,000	25,400,000	11,000,000
1880–84 . .	43,200,000	29,100,000	14,100,000
1885–89 . .	51,700,000	38,800,000	12,900,000
25 years . .	181,500,000	129,700,000	51,800,000

In 1889 the accounts stood thus :—

	Receipts, £	Expenses, £	Profit, £
Post-office . . .	9,100,000	6,300,000	2,800,000
Telegraphs . .	2,100,000	1,950,000	150,000
Total . .	11,200,000	8,250,000	2,950,000

FRANCE

The official returns are as follows :—

Year	Millions			Receipts, £
	Letters	Papers, &c.	Total	
1830 . .	64	40	104	1,200,000
1840 . .	94	53	147	1,600,000
1850 . .	160	94	254	1,500,000
1860 . .	264	179	443	2,400,000
1870 . .	281	348	629	2,600,000
1880 . .	531	700	1,231	4,300,000
1887 . .	671	852	1,523	6,500,000

The receipts of course include the telegraph department, of which we have the following :—

Year	Miles	Messages	Receipts, £	Pence per Message
1851 . . .	1,200	9,000	3,000	80
1860 . . .	14,700	720,000	168,000	56
1870 . . .	25,600	5,660,000	380,000	16
1880 . . .	40,200	17,100,000	930,000	13
1887 . . .	58,500	27,900,000	1,060,000	9

The above does not include railway telegraphic service. In 1885 the railways had 21,000 miles of telegraphs, which carried 6,500,000 messages. This makes the total 80,000 miles, 34,500,000 messages.

The parcel-post was instituted in 1880, in which year 4,000,000 parcels were carried ; in 1888 more than 21 millions. In nine years the total carried was 131 million parcels, which paid £3,550,000, averaging 6d. each. Money orders in 1887 were issued to the number of 22,600,000, the aggregate amount being £28,500,000, being an average of 25s. each. France has 6932 post-offices and 58,500 letter-boxes.

GERMANY

Official returns give the number of letters thus :—

Year	Millions	Per Inhabitant
1871	339	85
1877	717	160
1888	956	200

The total traffic of 1888 compares with that of 1881 as follows :—

	1881	1888
	Millions	Millions
Letters and cards . .	721	1,252
Newspapers . . .	452	725
Sundries . . .	126	511
Total . .	1,299	2,488

In 1888 the amount transmitted in 74 million money orders was £933,600,000, or about 3 millions sterling daily. The postal and telegraph services earned £11,350,000 ; expenditure £9,800,000 ; net profit

£1,550,000. Telegraphic service has grown as follows, viz. :—

	Miles	Messages	Receipts,£	Pence per Message
1870 . . .	20,400	8,600,000	390,000	11
1880 . . .	44,100	17,200,000	850,000	12
1888 . . .	57,700	24,100,000	1,200,000	12

The number of postal and telegraph servants in 1886 was 98,000, the weight of goods carried by parcel-post 404,000 tons.

RUSSIA

The returns for 1887 compare with those for 1881 thus :—

	1881	1887
Letters	110,000,000	152,600,000
Newspapers . . .	75,000,000	106,200,000
Sundries	7,000,000	66,900,000
Total . .	192,000,000	325,700,000

Besides the railways and canals, there are 110,000 miles of mail-coach roads, on which the State maintains 47,000 horses at various posting-stations. The post-office in 1887 transmitted money orders to the number of 11,300,000, and value of 390 millions sterling, an average of £34 each. The growth of telegraphs has been as follows :—

Year	Miles	Messages	Receipts,£	Pence per Message
1870 . . .	29,200	2,700,000	300,000	26
1880 . . .	58,800	7,300,000	770,000	25
1887 . . .	92,700	10,500,000	950,000	22

There are 3780 telegraph offices. In the years 1884–87 the annual averages for postal and telegraph services were :—

	£
Receipts	2,550,000
Expenditure	2,470,000

Leaving a net profit of £80,000 a year.

AUSTRIA

Official returns are as follows :—

Year	Letters and Papers, Millions		
	Austria	Hungary	Total
1850 . . .	42	...	...
1860 . . .	60	...	...
1870 . . .	194	57	251
1880 . . .	399	135	534
1888 . . .	730	230	960

The figures for the whole Empire were made up thus in 1888 :—

	Austria	Hungary	Total
Letters . .	484,400,000	126,600,000	611,000,000
Cards . .	91,200,000	30,800,000	122,000,000
Newspapers .	93,400,000	53,500,000	146,900,000
Books, &c. .	59,900,000	20,500,000	80,400,000
Total .	728,900,000	231,400,000	960,300,000

In 1886 there were 29,200,000 postal orders transmitted, for a total value of £70,600,000, averaging 48s. each.

The progress of telegraphs is shown as follows :—

Year	Miles	Messages	Receipts,£	Pence per Message
1875 . . .	29,300	6,800,000	320,000	11
1880 . . .	30,800	8,300,000	410,000	12
1887 . . .	38,200	13,200,000	...	...

The returns for 1887 showed thus :—

	Austria	Hungary	Total
Miles . . .	26,700	11,500	38,200
Offices . .	3,690	1,550	5,240
Messages . .	9,520,000	3,720,000	13,240,000

The total postal and telegraph receipts and outlay were :—

	Receipts, £	Outlay, £
Austria . . .	2,800,000	2,410,000
Hungary . . .	1,230,000	860,000
Total .	4,030,000	3,270,000

ITALY

The post-office traffic at various dates showed thus :—

Year	Letters	Papers, &c.	Total	Per Inhab.
1862	72,000,000	40,000,000	112,000,000	5
1871	99,000,000	96,000,000	195,000,000	8
1881	169,000,000	107,000,000	276,000,000	10
1887	252,000,000	199,200,000	452,800,000	15

There are 5300 post-offices and 4060 telegraph offices. Receipts and expenses were in 1888 as follows :—

	Receipts, £	Expenses, £
Mails . . .	1,700,000	1,400,000
Telegraphs . .	600,000	520,000
Total .	2,300,000	1,920,000

In 1885 there were 4,300,000 postal orders transmitted, showing an aggregate of 22 millions sterling, say £5 each. Telegraph service has grown as follows :—

Year	Miles	Messages	Receipts,£	Pence per Message
1870 . . .	11,100	2,200,000	200,000	22
1880 . . .	16,200	6,100,000	420,000	16
1887 . . .	21,100	8,800,000	560,000	16

Government lines exceed 20,000 miles, the rest belonging to companies.

SPAIN

Official returns show the number of letters thus :—

Year	Letters	Per Inhabitant
1846	15,200,000	1.2
1880	71,400,000	4.4
1887	102,600,000	6.0

There are 3070 post-offices and 952 telegraph offices. There were 90,000 postal orders in 1887, representing a

total of 7 millions sterling, averaging £78 each. Telegraph lines have grown as follows :—

Year	Miles	Messages	Receipts, £	Pence per Message
1855	440	3,000	5,000	400
1860	4,500	310,000	60,000	45
1870	7,200	1,040,000	60,000	14
1880	10,010	2,290,000	160,000	17
1887	11,510	3,550,000	240,000	16

Down to 1886 the construction of telegraphs had cost £700,000 sterling.

PORTUGAL

The number of letters carried was as follows :—

Year	Letters	Per Inhabitant
1878	12,200,000	3.0
1887	20,200,000	4.4

Telegraphs show as follows :—

Year	Miles	Messages	Receipts, £	Pence per Message
1875	2,200	1,300,000	45,000	8
1880	2,700	1,600,000	55,000	8
1885	3,200	1,730,000	70,000	10

There are 1640 post-offices and 275 for telegraphs.

SWEDEN AND NORWAY

The aggregate post-office traffic of the two kingdoms was as follows :—

Year	Letters and Papers	Per Inhabitant
1881	81,000,000	12
1887	142,000,000	21

The telegraph returns for 1888 showed thus :—

	Miles	Messages
Sweden	5,120	1,430,000
Norway	5,640	1,310,000
Total . .	10,760	2,740,000

In 1886 the Norwegian post-office transmitted money orders worth 11 millions sterling. The postal finances showed thus for the two kingdoms :—

	Sweden £	Norway £	Total £
Receipts . . .	340,000	185,000	525,000
Expenses . . .	335,000	195,000	530,000

If we take collectively the whole telegraph system of the two countries, we find as follows :—

Year	Miles	Messages	Receipts, £	Pence per Message
1855	1,900	80,000	9,000	27
1860	4,700	290,000	40,000	34
1870	7,800	1,060,000	70,000	16
1880	9,800	1,770,000	120,000	16
1888	10,760	2,740,000	130,000	11

The above does not include Government telegrams.

DENMARK

The total business in 1887 comprised :—

Letters	42,000,000
Papers, &c.	45,000,000
Total . . .	87,000,000

Total post-office income £380,000, expenses £470,000. Telegraphic service shows as follows :—

	Miles	Messages
1870	1,210	520,000
1880	2,200	1,170,000
1887	3,670	1,500,000

No separate accounts of receipts are kept, being included in those of the post-office. There are 360 telegraph offices, of which 200 belong to the railway companies.

HOLLAND

Postal traffic was as follows :—

	1884	1888
Letters and cards . .	84,300,000	92,700,000
Papers, &c. . .	73,600,000	86,200,000
Total . .	157,900,000	178,900,000

Telegraphic service has progressed as follows :—

Year	Miles	Messages	Receipts, £	Pence per Message
1855 . . .	620	140,000	13,000	23
1865 . . .	1,220	970,000	43,000	11
1875 . . .	2,140	2,200,000	62,000	7
1880 . . .	2,370	3,100,000	85,000	7
1888 . . .	3,100	4,100,000	100,000	6

The above comprises only the State lines, besides which there are twenty-nine companies, but their business is small. In 1888 the finances of the post-office and telegraph service were :—

	Receipts, £	Expenses, £
Post-office . . .	500,000	380,000
Telegraphs . . .	100,000	120,000
Total . .	600,000	500,000

BELGIUM

The official tables show as follows :—

Year	Letters	Papers, &c.	Total	Per Inhab.	Receipts, £
1850	13,000,000	12,000,000	25,000,000	6	120,000
1860	28,000,000	33,000,000	61,000,000	13	200,000
1870	53,000,000	67,000,000	120,000,000	24	280,000
1880	85,000,000	131,000,000	216,000,000	39	480,000
1888	106,900,000	183,300,000	290,200,000	49	620,000

Telegraphic statistics are summed up thus :—

Year	Miles	Messages	Receipts, £	Pence per Message
1850 . . .	250	14,000	4,000	68
1860 . . .	920	330,000	20,000	15
1870 . . .	2,700	2,400,000	60,000	6
1880 . . .	3,500	6,200,000	100,000	4
1888 . . .	4,200	7,300,000	130,000	4

The aggregate income in 1888 from mails and telegraphs was £750,000; expenditure £505,000; leaving a net profit of £245,000.

SWITZERLAND

Postal traffic showed as follows :—

	1881	1888
Letters and cards . .	65,000,000	121,800,000
Papers, &c. . . .	65,000,000	99,400,000
Total . .	130,000,000	221,200,000

Postal orders in 1888 amounted to £13,200,000 sterling. The telegraphic service was as follows :—

Year	Miles	Messages	Receipts, £	Pence per Message
1855 . . .	1,350	160,000	12,000	18
1860 . . .	1,790	300,000	20,000	16
1870 . . .	3,200	1,600,000	50,000	8
1880 . . .	4,070	2,800,000	95,000	8
1887 . . .	4,400	3,200,000	140,000	10

Down to 1887 the cost of construction was £200,000 sterling.

UNITED STATES

Official returns for 100 years show as follows :—

Year	Routes, Miles	Post-Offices	Revenue, £	Expenditure, £
1790	1,875	75	8,000	7,000
1800	20,800	903	60,000	45,000
1810	36,400	2,300	110,000	100,000
1820	72,400	4,500	220,000	240,000
1830	115,200	8,450	390,000	395,000
1840	155,700	13,470	950,000	980,000
1850	178,700	18,420	1,150,000	1,120,000
1860	240,600	28,500	1,770,000	3,950,000
1870	231,200	28,500	3,680,000	4,400,000
1880	343,900	42,990	6,920,000	7,600,000
1889	416,200	59,000	11,700,000	12,800,000

The railroad postal service is shown as follows :—

Year	Miles of Railway	Miles Run with Mails	Cost, £
1844 . . .	4,380	5,750,000	110,000
1850 . . .	9,020	6,520,000	170,000
1860 . . .	30,640	27,600,000	700,000
1870 . . .	52,910	47,600,000	940,000
1880 . . .	93,350	96,500,000	2,240,000
1889 . . .	156,080	204,200,000	4,500,000

The number of letters and papers, &c., that passed through the post-office was :—

Year				Millions	Per Inhab.
1885	.	.	.	4,965	90
1889	.	.	.	7,028	110

In 1889 there were issued 17,760,000 money orders, to a value of £29,400,000, averaging 34s. each.

The postal traffic of the United States, as already shown (at p. 457), constitutes 40 per cent. of that of the world, and exceeds the aggregate of all the nations of Continental Europe. As compared with population, the ratio in the United States is almost double what it is in the United Kingdom, or three times that of France. Postal revenue in the above table does not include telegraph receipts, which belong to companies; but if these were added, the total would be £16,500,000, or a little over 5s. per head, against 6s. in the United Kingdom.

The Western Union Telegraph has most of the busi-ness of the United States, possessing in 1889 a mileage of 179,000 out of a total of 200,000 miles. The Western Company showed as follows :—

Year	Miles	Offices	Messages	Receipts, £	Pence per Message
1867	46,300	2,560	5,880,000	1,360,000	54
1870	54,100	3,970	9,200,000	1,400,000	36
1880	85,600	9,080	29,200,000	2,660,000	23
1889	178,800	18,470	54,100,000	4,320,000	19

If the other lines, which sum up 21,000 miles, be credited with half the mileage traffic of the Western Union, this would add 2,900,000 messages, bringing up the total to 57 millions and the receipts to £4,800,000 per annum.

CANADA

The Handbook gives the following statistics :—

Year	Post-Offices	Letters	Papers, &c.	Total	Per Inhab.	Postal Revenue, £
1870	3,820	24,500,000	20,200,000	44,700,000	12	210,000
1880	5,770	45,800,000	58,400,000	104,200,000	24	340,000
1888	7,840	92,700,000	106,400,000	199,100,000	40	620,000

The expenditure in 1888 was £160,000 over the receipts, caused by the fact that many post-offices are in remote, thinly-settled districts. In 1888 the mails were carried over 25,760,000 miles, against 10,600,000 miles in 1868. The "dead-letter" office in 1887 showed 830,000 letters and papers, say 5 per 1000 of total traffic, against 592,000, or 6 per 1000, in 1880.

The money order office showed as follows :—

Year	Orders	Amount, £	Average, £
1870 . . .	110,000	820,000	7.5
1880 . . .	306,000	1,500,000	4.9
1888 . . .	674,000	2,360,000	3.5

Telegraph lines mostly belong to companies. The traffic in 1887 was as follows :—

	Miles	Offices	Messages
Pacific Railroad Co. .	5,000	550	500,000
North-Western Co. .	17,660	1,502	3,100,000
Western	2,920	176	400,000
Total . . .	25,580	2,228	4,000,000

The returns for 1888 compare with 1880 as follows :—

	Miles	Messages
1880	11,300	1,200,000
1888	29,460	4,050,000

In 1888 the mileage included 2900 miles of Government lines.

AUSTRALIA

Coghlan's table shows as follows for Australasia :—

Year	Letters	Papers, &c.	Total	Per Inhab.
1851 . .	2,100,000	2,200,000	4,300,000	9
1861 . .	14,600,000	11,500,000	26,100,000	21
1871 . .	31,300,000	17,600,000	48,900,000	26
1881 . .	99,020,000	53,440,000	152,460,000	56
1888 . .	174,500,000	119,200,000	293,700,000	82

In 1888 the several Colonies stood thus :—

	Post-Offices	Letters	Papers, &c.	Total	Per Inhab.	Receipts, £	Expenses, £
New South Wales . .	1,203	49,000,000	40,400,000	89,400,000	81	370,000	420,000
Victoria . . .	1,544	47,700,000	30,800,000	78,500,000	71	...	...
Queensland . . .	766	12,900,000	12,200,000	25,100,000	62	130,000	200,000
South Australia . .	594	17,000,000	8,700,000	25,700,000	82	110,000	180,000
New Zealand . . .	1,145	42,100,000	20,900,000	63,000,000	103	210,000	160,000
Tasmania . . .	278	4,700,000	4,800,000	9,500,000	64	35,000	40,000
Western Australia .	78	1,100,000	1,400,000	2,500,000	60	15,000	...
Total . .	5,608	174,500,000	119,200,000	293,700,000	82	...	...

The telegraph service was introduced at Sydney in 1851, and a line was opened from that city to Melbourne and Adelaide in 1858. A cable from Melbourne to Tasmania was laid in 1869, and communication by cable with Europe commenced in 1872. Connection was established with New Zealand in 1876, and finally in 1877 Western Australia was joined to the other colonies. The line between London and Adelaide consists of 9146 miles of cable and 3424 of land line. The cable from Australia to New Zealand is 1191 miles long. The land lines of the Colonies had the following :—

Year	Miles	Messages
1861	2,385	...
1880	26,900	5,100,000
1888	39,200	10,580,000

In 1888 the telegraphs of the several Colonies showed :—

	Miles	Messages	Receipts,£	Pence per Message
N. S. Wales .	10,690	3,410,000	185,000	13
Victoria . . .	4,190	2,740,000	125,000	11
Queensland . .	9,170	1,440,000	105,000	17
South Australia	5,510	990,000	105,000	25
New Zealand .	4,790	1,550,000	90,000	14
Tasmania . .	1,900	270,000	20,000	18
W. Australia .	2,960	180,000	10,000	13
Total . .	39,210	10,580,000	640,000	15

INDIA

Postal development dates from the overthrow of the East India Company in 1856, when there were only 750 post-offices. The traffic in 1884 and 1888 showed :—

Year	Post-Offices	Letters and Papers	Revenue,£	Expenditure, £
1884 . .	14,305	203,300,000	1,100,000	1,010,000
1888 . .	16,970	274,400,000	1,200,000	1,370,000

The mileage of mails carried was as follows :—

By	1870	1888
Rail	4,200	14,040
Boat	40,600	48,900
Horse	5,500	4,000
Total . .	50,300	66,940

The telegraph service shows as follows :—

Year	Miles	Messages	Receipts,£	Pence per Message
1880 . . .	22,200	1,600,000	...	...
1888 . . .	31,900	2,800,000	76,000	7

The above does not include Government messages, nor those of the Indo-European cable.

ARGENTINA

Official returns give the following :—

Year	Letters and Papers	Per Inhabitant
1860	410,000	0.3
1865	990,000	0.6
1875	6,920,000	3.0
1880	9,880,000	3.6
1888	76,810,000	21.2

There are 14,700 miles of telegraph, of which 7300 belong to the State. In 1889 the number of messages was 3,510,000.

POTATOES

Spallart's table down to 1884 is included in the following :—

	Production, Tons 1880–84, Average	Value, £	Year 1887		Tons per Acre
			Tons	Acres	
G. Britain	3,300,000	9,900,000	3,560,000	560,000	6.4
Ireland .	3,590,000	9,700,000	3,570,000	800,000	4.5
France .	11,300,000	22,600,000	11,290,000	3,570,000	3.2
Germany	21,860,000	44,000,000	25,140,000	7,250,000	3.5
Russia .	12,110,000	18,200,000	7,500,000	3,700,000	2.0
Austria .	7,210,000	14,400,000	8,200,000	2,760,000	3.0
Hungary	2,399,000	4,800,000	2,200,000	1,020,000	2.2
Italy . .	700,000	1,400,000	620,000	370,000	1.7
Spain. .	1,590,000	3,200,000	1,590,000	800,000	2.0
Portugal	280,000	600,000	280,000	140,000	2.0
Sweden .	1,610,000	3,200,000	1,500,000	390,000	3.9
Norway .	630,000	1,300,000	500,000	90,000	5.5
Denmark	360,000	700,000	360,000	110,000	3.3
Finland .	380,000	750,000	380,000	100,000	3.8
Holland .	1,490,000	3,000,000	1,550,000	350,000	4.4
Belgium .	2,490,000	5,000,000	3,000,000	490,000	6.1
Switzerland }	1,250,000	2,500,000	1,250,000	400,000	3.1
Roumania	500,000	1,000,000	500,000	200,000	2.5
Servia .	250,000	500,000	250,000	100,000	2.5
Greece .	250,000	500,000	250,000	100,000	2.5
Europe .	73,540,000	147,250,000	73,490,000	23,300,000	3.2
U. States	4,590,000	16,000,000	5,060,000	2,530,000	2.0
Canada .	1,200,000	2,400,000	1,200,000	430,000	2.8
Australia	400,000	800,000	430,000	110,000	3.9
Total .	79,730,000	166,450,000	80,180,000	26,370,000	3.1

We have nothing later than 1884 as regards Spain, Portugal, Switzerland, Roumania, Servia, and Greece. Four bushels of potatoes contain as much food as one bushel of wheat. They were first introduced into Germany in 1710, into Russia in 1769, and into Scotland about

1775: the man who sowed the first field of potatoes in Scotland died in 1850.

The production in various countries at different dates was approximately as follows :—

France		Germany		Russia	
Years	Tons	Year	Tons	Year	Tons
1815–20	1,950,000	1861	15,200,000	1849	2,550,000
1861–80	6,500,000	1879	18,900,000	1870	8,000,000
1887	11,300,000	1887	25,100,000	1887	7,500,000

Austria		Holland		Belgium	
1846	2,300,000	1851	700,000	1846	1,800,000
1859	5,020,000	1861	850,000	1856	2,000,000
1887	8,200,000	1887	1,550,000	1887	3,000,000

Sweden		United States			
1837	400,000	1840	2,700,000	1870	3,600,000
1859	510,000	1850	2,600,000	1880	4,200,000
1887	1,500,000	1860	2,800,000	1887	5,060,000

For consumption of potatoes see *Food*.

POULTRY.

The numbers are not known. The following is an approximate estimate :—

	Poultry, Number	Eggs Millions Yearly		Consumption per Inhabitant
		Production	Consumption	
United Kingdom	30,000,000	2,100	3,230	85
France	50,000,000	3,500	3,000	78
Germany . . .	50,000,000	3,500	3,500	75
Belgium . . .	4,500,000	320	420	70
Denmark . . .	4,000,000	280	160	80
Italy	25,000,000	1,800	1,400	47
Canada . . .	10,000,000	700	450	90
United States .	80,000,000	5,600	5,600	85

In the United Kingdom it is believed that 5 per cent. of eggs are hatched, and the gross product yearly is set down thus :—

	£
160 million dozen eggs . . .	5,300,000
80 million birds . . .	4,000,000
Total . . .	9,300,000

The countries which have a surplus for exportation, and the quantities exported, appear as follows :—

Year	Millions Eggs Exported				Value, £			
	France	Italy	Canada	Denmark	France	Italy	Canada	Denmark
1861	264	42	12	...	710,000	67,000	19,000	...
1870	499	129	31	...	1,250,000	206,000	65,000	...
1880	428	502	109	23	1,202,000	1,450,000	230,000	60,000
1888	500	420	220	111	1,100,000	1,000,000	450,000	260,000

Importation into the United Kingdom has been as follows :—

Year	Millions	Eggs per Inhabitant
1853	123	4
1865	364	12
1875	741	23
1889	1,131	30

The ordinary weight of hen-eggs is seven to 1 lb. in Spain, eight in England and France, nine in Poland, and ten in Germany. Frankland says that 100 oz. of eggs contain as much nutriment as 104 oz. of beef, 100 oz. of the yolk of eggs contain as much as 230 oz. of beef.

Mr. Baker, of New York, the "chicken-king," hatches 250,000 chickens yearly by steam. France has 1,800,000 turkeys, the United Kingdom 1,500,000.

POWER

The working-power of an able-bodied adult is equal to 300 foot-tons daily, that of a horse 3000, and of steam horse-power 4000. In the following table the number of horses in Russia is supposed to be only half that recorded officially, as it is probable that not more than half are available for labour :—

	Millions of Foot-Tons Daily				Foot-Tons per Inhab.
	Hand	Horse	Steam	Total	
U. Kingdom .	2,310	8,700	36,800	47,810	1,260
France . . .	2,970	9,600	18,100	30,670	770
Germany . .	3,330	10,500	24,800	38,630	790
Russia . . .	6,300	30,000	9,000	45,300	520
Austria . . .	2,850	11,300	8,600	22,750	550
Italy . . .	2,160	3,300	3,300	8,760	290
Spain . . .	1,260	5,500	3,000	9,760	550
Portugal . .	360	400	300	1,060	280
Switzerland .	210	330	1,200	1,740	580
Belgium . .	420	850	3,200	4,470	760
Holland . .	300	840	1,400	2,540	550
Scandinavia .	630	2,900	2,500	6,030	660
Europe . .	23,100	84,220	112,200	219,520	700
United States	4,400	46,200	57,600	108,200	700
Total .	27,500	130,420	169,800	327,720	900

In Spain and Italy mules are counted the same as horses. The above table excludes water-power, as it is impossible to make any comparison of how much is available in the various countries.

PRESS

The number of newspapers has multiplied nearly tenfold since 1840, viz. :—

	1840	1890	Approximate Issue Monthly	Date of First Paper
United Kingdom	493	1,840	150,000,000	1622
France. . . .	776	4,100	120,000,000	1605
Germany . . .	305	5,500	140,000,000	1524
Russia	204	667	12,000,000	1714
Austria . . .	132	2,233	40,000,000	1560
Italy	210	1,606	36,000,000	1562
Spain	74	1,161	11,000,000	1704
Portugal . . .	18	42	3,000,000	...
Belgium . . .	52	872	13,000,000	1764
Holland . . .	28	300	6,000,000	1757
Scandinavia . .	104	250	9,000,000	1644
Switzerland . .	54	450	6,000,000	...
Greece, &c. . .	10	100	1,000,000	...
Europe . .	2,460	19,121	547,000,000	...
United States .	1,210	15,392	230,000,000	1704
Spanish America	99	1,170	14,000,000	1728
Australia . . .	43	408	13,000,000	1803
Canada . . .	88	565	9,000,000	1765
India	63	644	...	1781
Japan	1	470	...	...
Africa	14	200	...	...
West Indies, &c.	38	66	...	...
Total . .	4,016	38,036	813,000,000	...

This means an average circulation in the world of about 33,000,000 newspapers daily. The number of books printed yearly cannot be ascertained; a certain London publisher sells a million. Great Britain exports annually over 10 millions.

According to *Hubbard's American Newspaper Directory* for 1880, there were in :—

	Dailies	Periodicals	Total
Europe	2,403	10,730	13,133
North America .	1,136	9,656	10,792
South America .	208	427	635
Africa	25	125	150
Asia	154	337	491
Australasia .	94	471	565
Total .	4,020	21,746	26,766

Mr. P. L. Simmonds, an old journalist, from a careful investigation, gives the following result, excluding the papers published at intervals longer than a week :—

Europe	17,000
North America	12,794
South America	1,260
Africa	210
Asia	692
Australasia	568
West Indies	181
Total . .	32,705

Mr. Simmonds also gives the following as a rough summary of the papers published in the English language :—

United Kingdom	2,100
North America	12,700
South America and the West Indies .	60
Australasia	575
European Continent . . .	20
Africa	114
Asia	203
	15,772

The average number of works published yearly has been as follows :—

	1828–32	1866–69	1878–80
Great Britain . .	1,060	3,220	5,771
France	4,640	7,350	7,000
Germany . . .	5,530	9,095	14,560
United States . .	1,013	2,165	2,500
Total . .	12,243	21,830	29,831

No book has been so often printed as the Bible. No fewer than 1326 editions of the Bible were published in the 16th century. In the 17th and 18th centuries it was translated and published in many languages by the polyglot press of the Propaganda Fide at Rome. Rev. Dr. Ginsburg, British Museum, has more than 4000 editions of the Bible, one of the most interesting being the polyglot version printed by Cardinal Ximenes at the University of Alcalà. Down to 1870 there were printed 55,000,000 copies of Webster's Spelling-book, and the sale of his Dictionary is said to average 300,000 yearly. There were two million copies of *Uncle Tom's Cabin* sold in ten years down to 1870.

UNITED KINGDOM

The advance of the newspaper press is shown thus :—

	Average Monthly Issue				Per 1000 Inhabitants	
	1801	1831	1864	1882	1831	1882
England	1,330,000	2,750,000	40,200,000	112,500,000	190	4,270
Scotland	80,000	160,000	2,300,000	11,700,000	70	3,130
Ireland	160,000	330,000	3,000,000	10,800,000	43	2,120
United Kingdom . . .	1,570,000	3,240,000	45,500,000	135,000,000	137	3,700

The new works issued in 1888 and 1889 were :—

	1888	1889
Economy	111	110
History and travels . .	601	513
Theology	743	630
Medicine	136	133
Poetry	163	133
Fiction	929	1,040
Sundries	2,277	2,135
New	4,960	4,694
Reprints	1,631	1,375
Total . .	6,591	6,069

In 1885 the newspapers of the United Kingdom were :—

	Dailies	Weeklies, &c.	Total
London . . .	15	360	375
Provinces . . .	116	987	1,103
Scotland . . .	22	161	183
Ireland	16	140	156
United Kingdom	169	1,648	1,817

FRANCE

In 1811 the news in the Paris papers took the following number of days to reach Paris :—

From	Days	From	Days	From	Days
Strasburg . .	6	Brest . . .	6	Rome . . .	11
Lyons . . .	6	Antwerp . .	7	Madrid . .	21

The average speed was 70 miles a day.

In 1882 the French daily papers issued as follows :—

	Daily	Copies per 1000 Inhab.
Paris	1,470,000	630
Lyons	73,000	190
Marseilles . . .	70,000	194
Bordeaux . . .	40,000	188
Other towns . .	647,000	...
France	2,300,000	60

In 1840 the daily issue of all the Paris journals summed up only 90,000 copies. The number of new works published yearly in France exceeds 7000.

GERMANY

The first steam printing-press was put up in 1848. At present about 11,000,000 books are printed yearly,

2 G

of which 5,000,000 are exported. At the annual fair of Leipzig 8000 tons of books are sold, valued at £1,600,000 sterling. Germany had 2350 newspapers in 1882, the oldest being the *Allgemeine Zeitung* of Augsburg, dating from 1794. The new works published yearly average 17,500 on the following subjects :—

	Annual Average	
	1884-85	1888-89
Theology	1,425	1,605
Trade, economy, &c. . .	1,475	1,520
Romance and poetry . .	1,320	1,570
School-books	2,100	2,020
Medicine	915	1,180
Classics	1,190	1,185
History and geography .	1,270	1,390
Sundries	6,255	7,030
Total	15,950	17,500

RUSSIA

In 1882 this immense Empire had only 360 printing offices, and 1543 book-shops. The importation of books from France and elsewhere averages two million volumes yearly.

The press turned out in 1882 the following :—

	Newspapers	Books
St. Petersburg . . .	123	714
Moscow	31	525
Provinces	164	853
Total . .	318	2,092

The total number of works published down to 1839 was :—

Period		Number
1750–1807		4,000
1808–21		9,250
1822–39		13,750
Total . .		27,000

In 1888 the following number of books was published :—

Language	Number	Copies
Russian . . .	5,318	17,400,000
Polish . . .	716	1,890,000
Hebrew . . .	343	1,005,000
German . . .	311	515,000
Various . . .	739	2,295,000
Total .	7,427	23,105,000

The aggregate daily issue of newspapers in St. Petersburg in 1880 was 125,000 copies. There were in the Empire 318 newspapers—264 Russian, 29 German, 6 French, 19 in various provincial tongues. According to the *Statesman's Yearbook* there were in 1889 no fewer than 667 papers and magazines :—

Russian	493
Polish	76
German	49
Various	49
Total . .	667

AUSTRIA

The first paper was the *Wiener Blatt*, 1671. The number of newspapers (excluding Hungary) was as follows :—

1847	. .	79	1873	. .	866
1862	. .	345	1886	. .	1,473

In twenty-five years down to 1873 there were 1931 papers started, of which—

Died under twelve months . . .	910
Between first and fifth year . . .	781
Survived fifth year	240
Total . .	1,931

The age of papers in 1873 was—

Over 20 years	51
3 to 20 years	409
Under 3 years	406
Total . .	866

In 1886 the press of Austria counted—

	Papers
German	965
Bohemian	263
Italian	54
Polish	84
Various	107
Total . .	1,473

There were 100 dailies, 450 weeklies, and 923 reviews, &c. In 1887 Hungary had 760 newspapers.

ITALY

The number of newspapers has been as follows :—

1840	. . . .	210
1875	. . . .	914
1887	. . . .	1,606

In 1875 the press stood thus :—

Milan .	. . .	104	Dailies . . .	127
Florence	. . .	82	Weeklies, &c. .	787
Turin .	. . .	68	Total .	914
Rome .	. . .	67		
Naples	. . .	52	20 years old . .	80
Various	. .	541	5 to 20 . .	236
Total	.	914	Under 5 . . .	598
			Total	914

In 1887 the papers were as follows :—

Dailies	. . .	135	Political . . .	429
Weeklies	. .	667	Agricultural . .	198
Reviews, &c.	.	804	Various . . .	979
Total	. .	1,606	Total . .	1,606

All were in Italian except twelve French and five English. The book-press issued in 1888 the following works :—

Religious	992
History and geography . . .	1,141
Agriculture and industries . . .	1,133
Various	7,597
Total . .	10,863

SPAIN

In 1889 there were 1161 papers and magazines, with an aggregate issue of 1,250,000, or about 1100 copies each, viz. :—

Madrid .	. .	327	Political . . .	496
Barcelona .	.	117	Scientific . . .	237
Seville .	. .	38	Religious . . .	113
Various .	.	679	Various . . .	315
Total	. .	1,161	Total . .	1,161

BELGIUM

In 1888 the press stood thus :—

Dailies	. .	81	Political . . .	365
Weeklies .	.	594	Scientific . . .	90
Reviews, &c.	.	197	Various . . .	417
Total	. .	872		872

In 1878, excluding reviews, there were 180 papers, of which 124 were in French and 56 in Flemish.

UNITED STATES

The first printing-press was brought from Amsterdam with 49 lbs. of type, and set up at Cambridge, Massachusetts, A.D. 1639, where Harvard University now stands. Another was started by W. Penn at Philadelphia in 1686. The "Hoe" press was invented by Robert Hoe at New York in 1833, and improved by his sons, who have made 10-cylinder presses for many of the great journals of America and Great Britain. The first newspaper was at Boston in 1690, and was at once suppressed by the Governor. The *Boston Newsletter* was founded in 1704; the *Mercury* of Philadelphia in 1719. Franklin began the *New England Courant* in 1721. The *New York Gazette* appeared in 1725.

The number of papers at various dates, and the aggregate issue of copies monthly, were as follows :—

Year	Dailies	Weeklies	Reviews, &c.	Total	Issue Monthly
1788	...	...	...	37	330,000
1810	...	...	...	364	1,850,000
1828	...	...	...	892	6,100,000
1840	130	1,304	200	1,634	...
1850	254	1,902	370	2,526	34,400,000
1860	387	3,173	491	4,051	74,600,000
1870	574	4,296	1,001	5,871	119,600,000
1880	980	8,718	1,705	11,403	186,100,000
1890	...	...	...	15,392	230,000,000

The monthly issue for 1890 is only an estimate. The circulation was as follows :—

	1850	1860	1870	1880
Dailies . .	760,000	1,480,000	2,602,000	3,640,000
Weeklies .	2,940,000	7,580,000	10,594,000	19,460,000
Reviews, &c.	1,440,000	4,605,000	7,646,000	8,080,000
Total .	5,140,000	13,665,000	20,842,000	31,180,000

The aggregate number of copies issued monthly in the above years was approximately as follows :—

	1850	1860	1870	1880
Dailies . .	19,000,000	37,000,000	65,000,000	90,000,000
Weeklies .	14,000,000	33,000,000	47,000,000	88,000,000
Reviews, &c.	1,400,000	4,600,000	7,600,000	8,100,000
Total .	34,400,000	74,600,000	119,600,000	186,100,000

Census returns give the following *daily* issues :—

States	Number of Papers		Issue	
	1870	1880	1870	1880
New England .	60	84	310,000	403,000
Middle . . .	171	259	1,369,000	1,799,000
South	82	122	146,000	174,000
West	261	497	776,000	1,264,000
Total . .	574	962	2,601,000	3,640,000

In 1880 there were 10,515 papers in English, 641 in German, 49 in Swedish or Danish, 41 in French, and 26 in Spanish. No fewer than 57 were edited by women.

JAPAN

In 1888 there were 470 newspapers and magazines, the principal journal being the *Osoka-Nippo*, which issues 10,000 copies daily. The *Japan Mail* and *Hiogo Times* are in English. The aggregate issue of newspapers is about two millions monthly. The Life of Washington was published in 1880 in 42 quarto volumes.

CHINA

The *Pekin Court Gazette* celebrated in 1884 the completion of its 10th century : it was 640 years old when the first newspaper was printed in Europe in 1524. Secretary Ho has published a translation of Shakespeare, and a Pekin publisher has also issued Blackstone's Commentaries in Chinese.

AUSTRALIA

The first paper was printed at Sydney in 1803. There were 43 in Australasia in 1840, and the number rose to 270 in 1882. The returns at present are incomplete, but may be taken approximately thus :—

Dailies	156
Weeklies, &c.	252
Total . .	408

The number of newspapers sent through the post compared with population thus :—

Year	Number	Per Inhab.
1851 . . .	2,150,000	4.7
1871 . . .	17,580,000	9.3
1888 . . .	93,410,000	25.9

The above shows an average postal circulation of 300,000 copies daily : the total issue, therefore, can hardly fall short of half-a-million copies, say 13 millions monthly, or one-tenth of that of the United Kingdom in 1882.

CANADA

In 1765 the first paper was printed at Quebec. There were 88 in 1840, and the latest report showed 565. The number of newspapers sent through the post was :—

Year	Number	Per Inhab.
1870 . . .	20,200,000	5.5
1887 . . .	64,300,000	13.2

The total issue is approximately 350,000 copies daily.

SOUTH AMERICA

The first printing-press introduced into the New World was that established by the Jesuits at Cordoba, in the province of Tucuman, about 1610. Another was established at Misiones, in Paraguay, about 1680, and some books of this press are in the British Museum, dated 1705-24. General Auchmuty, after the capture of Monte Video, founded a paper called the *Southern Star* in 1806, which lasted only three months. In 1826 Mr. Love founded at Buenos Ayres a weekly called the *British Packet*, which died in 1858. A well-known weekly paper called the *Panama Star*, was founded by Archibald Boyd in 1849, which still flourishes. The first daily paper in the English language which appeared in Spanish America was the *Buenos Ayres Standard*, founded by the author of this Dictionary, 1st May 1861, which is now the best known journal of South America. The press of Argentina in 1886 was as follows :—

	Dailies	Weeklies, &c.	Total
Buenos Ayres . .	25	57	82
Provinces . . .	13	101	114
Total . .	38	158	196

There are 4 English, 3 French, 3 Italian, 2 German, and 184 Spanish newspapers, which issue 3,600,000 copies monthly.

INDIA

In 1880 there were 644 newspapers, of which forty were in English, the rest in Bengali, Marathi, and other native tongues. In 1886 there were published 8900 works, of which nine-tenths were in native languages.

PRICES

The earliest table of prices is that fixed by the Emperor Diocletian, A.D. 303, for the whole Roman Empire, viz. :—

Prices in English Pence and English Measure

Wines, &c.	Per Pint	Meat, &c.	Per Lb.	Game	Per Head
Falernian .	15	Beef . . .	4	Grouse . .	15
Sorrento .	15	Mutton . .	4	Dove . . .	12
Sabine . .	15	Lamb . . .	6	Pigeon . .	18
Ordinary .	10	Pork . . .	6	Wood do. .	15
Inferior .	8	Ham . . .	10	Partridge .	24
Rustic . .	4	Sausages . .	4	Duck . . .	30
Vinegar .	3	Venison . .	7	Rabbit . .	30
Beer . . .	2	Boar . . .	9	Fowl . . .	45
Small do. .	1	Sea-fish . .	14	Goose . .	75
Oil, 1st .	20	River-fish .	7	Fat do. .	150
,, 2nd .	12	Salted ,, . .	4	Pheasant .	80
,, 3rd .	6	Snails, dozen .	1	Hare . . .	110

Groceries	Per Lb.	Vegetables,&c.	20	Clothing, &c.	Pence
Tallow . .	3	Apples. . .	2	Socks. . .	3
Cheese . .	7	Cherries . .	1	Tunic . .	12
Butter . .	9	Almonds . .	$\frac{1}{2}$	Breeches .	15
Lard . . .	9	Walnuts . .	1	Cloak. . .	30
Honey . .	12	Chestnuts . .	1	Boots. . .	100
Beans . .	5	Onions. . .	4	Shoes. . .	120
Peas . . .	3	Turnips . .	8	Slippers . .	50
Lentils. . .	5	Cucumbers .	8	Clogs. . .	40
20 eggs . .	15	Lettuce . .	15	Saddle . .	400
20 oysters .	15	Cauliflowers .	15	Bridle . .	80
20 figs . .	2	Melons . .	30	Whip. . .	12
20 roses . .	1	Artichokes .	30	Bath . . .	2

According to Landrin and Roswag, the quantity of wheat that could be bought at various epochs for an ounce of silver, say 4s. of present money, was as follows :—

Period	Lbs. of Wheat for 4s.	Price per Ton
		£ s. d.
B.C. 600	430	1 1 6
,, 300	360	1 5 0
,, 200	346	1 6 0
,, 50	330	1 7 0
A.D. 50–300 . . .	324	1 7 6
,, 301–500 . .	320	1 8 0
,, 501–800 . .	314	1 8 6
,, 801–1400 . .	307	1 9 0
,, 1401–1500 . .	314	1 8 6
,, 1501–1600 . .	250	1 16 0
,, 1601–1650 . .	200	2 4 6
,, 1651–1700 . .	154	2 18 0
,, 1701–1750 . .	124	3 12 0
,, 1751–1800 . .	75	6 0 0
,, 1801–1850 . .	37	12 0 0
,, 1851–1880 . .	34	13 5 0

From the above it would appear that from the time of Alexander the Great down to that of Columbus the price of wheat averaged 28s. per ton; but the discovery of America, in 1492, was followed by such an influx of gold and silver into Europe that prices of all commodities rose in succeeding centuries, and the price of wheat from 1751 to 1800 averaged four times as much as in the time of Columbus.

The tables of Sir Morton Eden and Marquis Garnier from 1401 to 1756, with continuation to the present date, show the price of wheat reduced to English money as follows :—

Period	England, per Ton			Year of Price		France, per Ton			Year of Price	
	Highest	Lowest	Average	Highest	Lowest	Highest	Lowest	Average	Highest	Lowest
	£ s.	£ s.	£ s.			£ s.	£ s.	£ s.		
1401–10 . . .	2 15	0 13	1 8	1401	1404	3 18	2 7	3 2	1410	1406
1411–20 . . .	3 3	1 0	1 18	1416	1411	2 10	1 3	1 17	1411	1413
1421–30 . . .	2 2	1 0	1 10	1429	1427	9 1	1 0	4 1	1430	1428
1431–40 . . .	6 13	1 2	2 15	1434	1437	13 4	1 15	6 15	1437	1435
1441–50 . . .	1 13	1 0	1 7	1442	1450	5 14	0 14	2 1	1443	1448
1451–60 . . .	1 15	0 11	1 5	1451	1454	2 7	0 19	1 15	1457	1452
1461–70 . . .	1 13	0 18	1 6	1464	1463	2 12	0 12	1 4	1466	1464
1471–80 . . .	...	...	2 0	...	...	1 18	1 0	1 8	1478	1472
1481–90 . . .	4 2	0 18	1 12	1486	1489	3 18	1 7	2 7	1482	1489
1491–1500 . .	5 0	0 18	1 12	1497	1495	2 5	0 18	1 10	1499	1495
1501–10 . . .	1 15	0 18	1 9	1501	1509	2 12	0 15	1 15	1501	1510
1511–20 . . .	4 13	1 10	2 8	1512	1515	5 14	0 16	2 5	1515	1511
1521–30 . . .	5 17	1 7	3 10	1521	1530	6 17	1 10	3 19	1521	1526
1531–40 . . .	4 7	1 18	3 5	1538	1534	8 14	2 11	4 15	1539	1534
1541–50 . . .	6 7	1 13	4 5	1544	1548	4 12	2 15	3 16	1544	1541
1551–60 . . .	6 17	2 8	3 13	1556	1555	7 19	4 6	4 6	1556	1558
1561–70 . . .	5 3	3 7	4 4	1561	1568	11 3	4 19	7 15	1563	1564
1571–80 . . .	8 4	4 0	5 10	1573	1576	18 13	5 7	9 5	1574	1577
1581–90 . . .	8 0	3 11	5 7	1586	1588	12 12	5 12	7 17	1590	1581
1591–1600 . .	15 9	4 3	9 10	1597	1592	31 19	7 10	17 6	1591	1600
1601–10 . . .	12 13	6 1	8 0	1608	1604	10 15	5 14	7 6	1608	1602
1611–20 . . .	10 16	6 2	8 15	1617	1620	12 17	5 17	7 6	1618	1620
1621–30 . . .	13 1	6 5	9 15	1622	1628	14 19	6 15	9 11	1626	1624
1631–40 . . .	15 2	9 10	11 10	1631	1639	17 16	7 4	9 18	1631	1639
1641–50 . . .	18 18	7 16	13 5	1648	1644	19 18	7 0	11 10	1650	1646
1651–60 . . .	13 15	5 12	10 5	1651	1654	19 5	7 13	11 11	1651	1657
1661–70 . . .	16 5	6 7	10 10	1662	1666	20 2	5 19	11 17	1662	1668
1671–80 . . .	15 5	7 15	10 8	1674	1676	12 7	5 18	8 14	1679	1673
1681–90 . . .	10 1	5 15	8 5	1681	1688	12 1	5 5	8 7	1685	1688
1691–1700 . .	14 19	7 10	12 0	1698	1691	24 5	6 11	13 3	1694	1691
1701–10 . . .	17 0	5 12	9 5	1709	1706	22 0	4 7	9 19	1709	1707
1711–20 . . .	11 15	7 15	9 10	1711	1719	16 4	3 11	8 10	1714	1718
1721–30 . . .	12 5	7 6	9 2	1728	1723	14 8	5 1	7 15	1725	1728
1731–40 . . .	12 1	5 15	8 1	1740	1732	10 18	4 2	6 8	1740	1733
1741–50 . . .	8 5	5 9	7 5	1746	1743	10 1	4 8	7 2	1741	1744
1751–60 . . .	14 5	7 10	9 10	1757	1755	9 15	4 7	6 12	1752	1759

Period	England, per Ton			Years of Price		France, per Ton			Years of Price	
	Highest	Lowest	Average	Highest	Lowest	Highest	Lowest	Average	Highest	Lowest
	£ s.	£ s.	£ s.			£ s.	£ s.	£ s.		
1761–76 . . .	15 1	6 6	10 12	1767	1761	10 15	5 8	7 5	1770	1763
1771–80 . . .	13 11	8 13	11 9	1774	1779	10 12	7 6	8 13	1771	1780
1781–90 . . .	13 14	10 0	12 0	1790	1786	12 14	7 16	9 5	1789	1781
1791–1800 . .	28 9	10 15	15 18	1800	1792	11 16	9 8	10 12	1800	1799
1801–10 . . .	29 18	14 14	21 0	1801	1803	14 5	8 12	11 12	1803	1809
1811–20 . . .	31 13	16 8	21 18	1812	1815	21 0	10 5	14 7	1817	1814
1821–30 . . .	17 2	11 3	14 17	1825	1822	13 2	9 0	10 13	1829	1822
1831–40 . . .	17 13	9 17	14 4	1839	1835	12 17	8 17	11 1	1839	1834
1841–50 . . .	17 5	10 1	13 7	1847	1850	16 17	8 6	11 9	1847	1850
1851–60 . . .	18 14	9 13	13 17	1855	1851	17 0	8 13	13 0	1855	1851
1861–70 . . .	16 2	10 1	13 0	1867	1864	15 10	9 11	12 10	1868	1865
1871–80 . . .	14 14	11 0	11 17	1873	1879	14 18	11 5	13 3	1871	1875
1881–89 . . .	11 7	7 14	9 5	1881	1889	12 18	9 15	10 15	1881	1885

The average prices of wheat in periods in England, France, Italy, Russia, and United States were as follows, per ton :—

	England	France	Russia	Italy	United States	Average
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
1771–80 . . .	11 10	8 15	...	8 5	...	9 10
1781–90 . . .	12 0	9 5	...	8 16	...	10 0
1791–1800 . .	16 0	10 10	...	11 5	...	12 12
1801–10 . . .	21 0	11 10	...	13 0	...	15 3
1811–15 . . .	23 10	14 0	...	14 0	...	17 3
1816–20 . . .	20 5	14 15	9 5	12 4	12 0	13 12
1821–25 . . .	14 5	9 10	4 10	5 8	7 12	8 5
1826–30 . . .	15 10	11 10	6 0	8 14	7 11	9 18
1831–35 . . .	13 5	10 10	6 5	7 14	8 8	9 4
1836–40 . . .	15 5	11 10	6 10	8 7	9 16	10 6
1841–45 . . .	13 15	11 5	7 10	8 3	7 4	9 2
1846–50 . . .	13 0	11 15	8 5	10 5	9 4	10 10
1851–55 . . .	14 0	13 5	11 0	12 6	9 12	12 1

In 1881 was published the following table of average prices of wheat in various countries during sixty years, per ton :—

Period	Great Britain	France	Germany	Russia	Austria	United States	General Average
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
1821–30	15 0	10 10	8 3	7 17	6 10	10 0	10 2
1831–40	14 6	11 0	7 14	7 7	5 17	11 7	9 12
1841–50*	13 7	11 10	9 7	7 0	7 10	9 14	9 15
1851–60	13 17	13 0	11 13	10 16	11 7	13 3	12 6
1861–70	13 0	12 10	11 7	11 7	13 0	12 10	12 6
1871–80	11 17	13 3	13 13	11 3	11 13	10 16	12 1

* The price of wheat in 1846, the year of the Irish famine, was as follows in various parts of the world, per ton :—

	£ s.		£ s.
Alexandria . . .	5 16	Edinburgh	14 10
Amsterdam . . .	20 6	Genoa	13 18
Ancona	9 18	London	15 14
Bilbao	11 0	Malaga	13 7
Brussels	15 8	Milan	13 7
Christiania	15 2	New York	9 18
Copenhagen . . .	11 12	Odessa	8 2
Dantzic	13 7	St. Petersburg . .	10 8
Dublin	19 14	Trieste	11 0

Commendatore Bodio gives the following prices of wheat per ton in ten different markets, from 1869 to 1884 :—

Year	London	Paris	Berlin	Brussels	Amsterdam	Rome	Vienna	Buda-Pesth	Algiers	New York
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
1869	11 8	10 18	10 0	11 8	11 10	9 18	8 6	...	10 2	10 8
1870	11 4	12 4	9 18	11 18	11 18	10 12	9 5	...	10 9	9 6
1871	12 16	14 15	10 15	15 0	13 4	11 18	10 18	10 0	11 18	12 6
1872	12 15	12 7	11 18	13 8	12 17	12 1	11 12	10 18	11 10	12 2
1873	13 6	14 4	12 10	14 7	14 1	13 1	13 0	13 5	12 16	12 12
1874	12 18	13 3	11 12	13 16	11 12	13 8	10 6	11 15	12 6	11 7
1875	10 10	9 18	9 12	10 18	10 17	10 8	7 12	8 14	9 14	9 14
1876	10 19	11 0	10 6	11 10	12 3	10 18	7 19	9 1	9 12	9 19
1877	12 12	12 16	11 7	13 4	14 16	12 10	8 16	10 0	12 6	11 18
1878	12 6	12 10	9 14	11 10	11 12	11 15	8 0	8 8	12 3	9 7
1879	11 10	11 12	9 12	11 0	10 11	11 10	8 8	9 6	10 2	9 6
1880	12 6	12 5	10 16	11 12	10 12	12 1	9 2	10 12	10 10	10 0
1881	10 18	12 1	10 15	11 11	10 15	10 12	9 3	10 18	11 16	10 4
1882	10 12	10 18	10 3	10 12	9 12	10 4	8 3	9 9	10 7	8 16
1883	10 1	10 6	8 16	9 18	9 8	9 10	7 8	8 10	10 4	9 1
1884	9 1	9 5	8 16	8 17	8 0	8 18	6 10	7 12	8 12	7 10
average 16 years .	11 11	11 18	10 8	11 18	11 8	11 4	8 12	9 18	10 18	10 5
1889	6 18	9 6	9 6	...	6 12	...	...	...	...	6 12

The highest average of prices for sixteen years was at Paris, namely £11, 18s. ; the lowest at Vienna, namely £8, 12s. The highest price for a year was at Brussels, £15 in 1871 ; the lowest at Vienna, £6, 10s. in 1884. The greatest variation of price was at Vienna, falling from £13 in 1873 to half that sum in 1884 ; the least variation was at Berlin.

Mr. Newmarch gives the following table of prices at Melbourne during the gold fever :—

	1852	1853	1854	1855	1856	1852–56
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Barley, bushel	4 0	12 0	6 0	6 0	...	8 0
Beef, lb.	0 5	0 6	0 7	0 6	0 5	0 6
Beer, hhd.	160 0	160 0	200 0	200 0	182 0	180 0
Brandy, gallon	12 3	13 0	10 3	12 0	13 9	12 2
Bricks, 1000	120 0	235 0	175 0	80 0	65 0	135 0
Candles, lb.	2 3	2 3	1 10	1 7	1 7	1 10
Coffee, cwt.	70 0	76 0	56 0	51 0	90 0	69 0
Ducks, pair	9 0	15 0	24 0	20 0	18 0	17 0
Flour, cwt.	33 0	30 0	33 0	41 0	27 0	33 0
Goose	7 6	18 0	23 0	20 0	19 0	17 6
Hay, cwt.	16 0	29 0	30 0	15 0	8 0	19 6
Hens, pair	8 6	15 0	14 0	15 0	15 0	13 6
Oats, bushel	5 9	8 6	10 3	8 6	...	8 3
Ox	120 0	165 0	220 0	220 0	195 0	184 0
Potatoes, cwt.	14 6	21 6	23 0	10 6	10 0	16 0
Rice, cwt.	9 0	11 6	16 0	15 6	14 6	13 6
Sheep	5 6	13 0	22 6	18 6	18 6	15 6
Sugar, cwt.	21 3	19 6	23 0	28 0	...	23 0
Tea, chest	63 0	96 0	102 0	83 0	82 0	85 0
Tobacco, lb.	2 2	2 2	2 2	2 0	...	2 1
Wheat, bushel	8 6	9 0	14 3	15 6	8 2	11 1
Wine, gallon	3 4	3 4	3 9	4 2	3 4	3 7

He also gives the prices of food at San Francisco under similar circumstances in 1854 as follows :—

	s. d.		s. d.		s. d.
Beef, lb.	1 7	Duck	4 2	Cauliflower	2 0
Butter, lb.	4 2	Hen	11 0	Milk, quart	1 0
Eggs, doz.	5 3	Cabbage	1 0	Potatoes, cwt.	13 0

Neumann Spallart ascertained the prices of all kinds of grain in 1884 in the principal countries of the world to be as follows :—

	Per Ton				
	Wheat	Rye	Barley	Oats	Maize
	£ s.	£ s.	£ s.	£ s.	£ s.
England	8 2	...	8 1	7 5	5 14
Russia	4 16	4 6	3 19	3 8	...
France	7 16	7 0	7 3	7 10	7 12
Germany	7 16	7 0	7 0	6 1	...
Italy	8 11	5 17	6 13	4 17	6 7
Austria	4 10	3 19	3 15	3 8	3 10
Hungary	3 12	3 10	2 17	2 13	3 3
Denmark	7 7	6 14	7 0	6 15	...
Holland	8 11	6 14	6 9	6 6	...
United States	5 2	4 10	5 0	4 8	3 3
Average	6 12	5 8	5 14	5 6	5 6

The prices of various commodities in different countries in 1888 were as follows :—

	G. Britain	France	Germany	Austria	Sweden	Norway	Belgium	Switzerland	U. States
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
Bacon, ton	44 15	...	...	...	...	40 0	...	...	39 0
Barley	5 14	7 0	6 11	7 10	5 2	5 6	6 18	9 6	6 16
Butter	107 0	...	...	53 0	67 0	61 0	105 0	70 0	85 0
Cheese	47 0	...	...	55 0	56 0	63 0	61 0	70 0	47 0
Coffee	75 0	...	82 0	102 0	91 0	72 0	65 0	84 0	61 0
Fish	24 7	...	7 0	...	19 0	...	...	...	22 0
Lard	41 2	...	...	...	33 0	...	28 0	...	36 0
Maize	5 3	7 0	...	5 0	6 10	5 19	...	...	4 11
Oats	4 18	7 10	7 10	4 18	4 19	4 16	5 18	6 12	6 13
Pork	37 10	58 0	44 0	38 10	39 0	...	...	...	35 0
Potatoes	6 14	2 16	1 14	3 15	2 16	...	3 11	3 2	3 14
Raisins	30 7	...	...	17 10	33 0	21 0	28 0	18 5	19 0
Rice	7 9	...	10 5	16 0	11 10	10 15	...	13 10	8 8
Spirits, 100 gals.	8 3	...	...	...	...	...	11 13	8 11	15 0
Sugar, ton	17 11	...	30 17	29 0	21 0	23 0	21 0	20 10	29 0
Tea	102 0	...	...	268 0	168 0	118 0	280 0	198 0	73 0
Tobacco	70 0	...	56 0	90 0	...	59 0	65 0	47 0	39 0
Wheat	7 14	10 0	9 8	6 17	8 4	7 18	7 18	9 1	6 10
Wine, 100 gals.	36 10	...	...	18 15	...	...	16 7	5 11	14 2

GREAT BRITAIN

The prices of various commodities during the last 690 years, according to Arthur Young, Shuckburgh, and other writers, were as follows :—

	Nominal Price						
	1201–99	1300–99	1400–99	1500–99	1600–99	1700–99	1800–85
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Ox	0 13 0	0 16 0	1 0 0	1 11 0	5 0 0	8 0 0	14 0 0
Sheep	0 1 0	0 1 6	0 2 0	0 3 0	0 7 0	0 18 0	1 5 0
Pig	0 2 0	0 3 0	0 3 0	0 4 0	0 8 0	1 2 0	1 10 0
Goose	0 0 3	0 0 4	0 0 6	0 0 8	0 1 0	0 2 0	0 4 0
Rabbit	0 0 2	0 0 2	0 0 3	0 0 3	0 0 6	0 0 8	0 1 0
Hen	0 0 1	0 0 2	0 0 3	0 0 4	0 0 8	0 1 0	0 1 6
Horse	...	...	2 0 0	3 0 0	5 0 0	15 0 0	30 0 0
Pigeons, doz.	0 0 3	0 0 4	0 0 6	0 0 9	0 1 0	0 1 6	0 3 0
Eggs, ,,	0 0 1	0 0 2	0 0 3	0 0 3	0 0 4	0 0 8	0 1 0
Butter, lb.	...	0 0 1	0 0 1	0 0 2	0 0 4	0 0 5	0 1 0
Beef, 8 lbs.	0 0 2	0 0 4	0 0 5	0 0 6	0 2 0	0 3 0	0 7 0
Wheat, ton	...	1 10 0	1 10 0	4 0 0	10 10 0	12 10 0	14 0 0
Wine, gallon	0 1 0	0 1 0	0 1 0	0 3 0	0 5 0	0 16 0	0 16 0
Beer, ,,	0 0 1	0 0 2	0 0 2	0 0 3	0 0 4	0 0 8	0 1 6

| | Prices According to Weight of Silver | | | | | | |
	1201–99	1300–99	1400–99	1500–99	1600–99	1700–99	1800–85
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Ox	2 3 0	2 5 0	2 2 0	2 0 0	5 6 0	8 10 0	14 0 0
Sheep	0 3 0	0 4 6	0 4 0	0 4 0	0 8 0	0 19 0	1 5 0
Pig	0 6 0	0 9 0	0 6 0	0 6 0	0 9 0	1 3 0	1 10 0
Goose	0 0 9	0 1 0	0 1 0	0 0 11	0 1 0	0 2 1	0 4 0
Rabbit	0 0 6	0 0 6	0 0 6	0 0 4	0 0 6	0 0 8	0 1 0
Hen	0 0 3	0 0 6	0 0 6	0 0 5	0 0 9	0 1 0	0 1 6
Horse	...	...	4 4 0	4 0 0	5 6 0	15 15 0	30 0 0
Pigeons, doz.	0 0 9	0 1 0	0 1 0	0 1 0	0 1 1	0 1 6	0 3 0
Eggs, ,,	0 0 3	0 0 6	0 0 6	0 0 4	0 0 4	0 0 8	0 1 0
Butter, lb.	...	0 0 3	0 0 2	0 0 3	0 0 4	0 0 5	0 1 0
Beef, 8 lbs.	0 0 6	0 1 0	0 0 10	0 0 8	0 2 1	0 3 2	0 7 0
Wheat, ton	...	4 0 0	3 0 0	5 5 0	11 5 0	13 5 0	14 0 0
Wine, gallon	0 3 0	0 3 0	0 2 0	0 4 0	0 6 0	0 17 0	0 16 0
Beer, ,,	0 0 3	0 0 5	0 0 4	0 0 4	0 0 4	0 0 8	0 1 6

The following tables of prices from 1782 to 1859 are from Tooke's *History of Prices*:—

	1782	1783	1784	1785	1786	1787	1788	1789	1790	1782–90
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Coffee, cwt.	70 0	66 0	65 0	69 0	78 0	91 0	92 0	95 0	78 0	78 0
Copper, ,,	85 0	85 0	85 0	80 0	82 0	81 0	80 0	82 0	84 0	83 0
Cotton, ,,	330 0	285 0	205 0	203 0	252 0	242 0	225 0	185 0	170 0	233 0
Flax, ,,	43 0	46 0	44 0	44 0	45 0	43 0	44 0	46 0	46 0	44 6
Hemp, ,,	34 0	32 0	28 0	23 0	25 0	36 0	36 0	28 0	27 0	30 0
Hops, ,,	85 0	150 0	95 0	98 0	75 0	140 0	260 0	140 0	90 0	126 0
Indigo, lb.	5 0	5 6	4 0	4 0	3 6	4 6	4 0	6 0	3 0	4 4
Iron, cwt.	6 9	5 9	4 9	4 9	4 9	4 6	5 0	5 0	5 0	5 1
Oil, gallon	3 6	3 8	3 10	3 10	3 8	3 2	3 1	3 5	3 4	3 6
Pepper, cwt.	205 0	195 0	170 0	140 0	122 0	130 0	121 0	130 0	140 0	150 2
Rice, ,,	26 0	28 0	24 0	16 0	19 0	18 0	17 0	17 0	16 0	20 1
Rum, gallon	4 7	3 1	3 5	2 11	2 6	2 9	3 4	2 9	3 4	3 3
Silk, lb.	19 0	19 0	19 0	22 0	31 0	31 0	26 0	20 0	20 0	23 0
Sugar, cwt.	45 0	34 0	32 0	32 0	38 0	36 0	38 0	39 0	42 0	37 6
Tea, lb.	5 0	4 9	5 1	4 1	4 9	4 0	4 6	3 9	3 7	4 4
Timber, load	68 0	51 0	42 0	40 0	37 0	33 0	33 0	29 0	37 0	41 0
Tin, cwt.	83 0	83 0	83 0	85 0	85 0	85 0	81 0	74 0	77 0	82 0
Tobacco, cwt.	140 0	65 0	50 0	37 0	33 0	36 0	33 0	33 0	33 0	51 0
Wheat, quarter	54 0	54 0	54 0	48 0	42 0	46 0	49 0	56 0	56 0	51 0
Wool, lb.	3 4	3 6	3 5	3 5	3 3	3 3	3 7	3 7	3 7	3 5

	1791	1792	1793	1794	1795	1796	1797	1798	1799	1800	1791–1800
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Coffee, cwt.	78 0	90 0	83 0	80 0	95 0	110 0	118 0	139 0	141 0	117 0	105 0
Copper, ,,	87 0	96 0	110 0	109 0	109 0	115 0	120 0	120 0	130 0	150 0	114 0
Cotton, ,,	195 0	233 0	225 0	186 0	176 0	230 0	270 0	305 0	330 0	270 0	242 0
Flax, ,,	38 0	34 0	35 0	35 0	47 0	55 0	51 0	52 0	61 0	67 0	47 0
Hemp, ,,	23 0	25 0	26 0	28 0	39 0	55 0	45 0	37 0	41 0	64 0	38 4
Hops, ,,	110 0	78 0	143 0	151 0	95 0	80 0	135 0	135 0	295 0	297 0	152 0
Indigo, lb.	6 6	7 9	5 9	5 6	5 9	5 6	4 1	6 10	7 0	6 3	6 1
Iron, cwt.	6 3	6 3	6 3	6 6	6 6	6 6	6 6	6 6	6 6	7 0	6 6
Oil, gallon	3 2	3 5	4 2	4 7	4 8	4 9	5 0	5 6	5 11	5 2	4 7
Pepper, cwt.	160 0	190 0	130 0	128 0	130 0	127 0	128 0	122 0	168 0	170 0	145 4
Rice, ,,	16 0	17 0	17 0	39 0	31 0	17 0	17 0	28 0	39 0	38 0	26 0
Rum, gallon	3 9	4 1	4 8	3 7	6 0	7 9	6 3	6 3	4 3	6 0	5 4
Silk, lb.	21 0	22 0	18 0	17 0	18 0	20 0	20 0	24 0	25 0	24 0	21 0
Sugar, cwt.	56 0	58 0	57 0	50 0	59 0	69 0	64 0	71 0	58 0	51 0	59 4
Tea, lb.	3 10	4 0	3 9	3 4	3 9	3 8	3 4	3 5	3 1	3 3	3 8
Timber, load	52 0	46 0	46 0	51 0	58 0	56 0	62 0	58 0	84 0	115 0	63 0
Tin, cwt.	82 0	98 0	104 0	102 0	100 0	102 0	103 0	100 0	103 0	107 0	100 1
Tobacco, cwt.	30 0	32 0	35 0	33 0	51 0	59 0	85 0	112 0	88 0	58 0	58 4
Wheat, quarter	49 0	47 0	50 0	54 0	82 0	80 0	62 0	54 0	76 0	127 0	68 0
Wool, lb.	3 9	4 2	4 2	3 9	3 9	4 0	4 1	4 1	4 6	4 8	4 1

	1801	1802	1803	1804	1805	1806	1807	1808	1809	1810	1801–10
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Coffee, cwt.	95 0	78 0	108 0	133 0	145 0	115 0	100 0	88 0	93 0	93 0	105 0
Copper, ,,	160 0	145 0	135 0	153 0	182 0	191 0	155 0	174 0	160 0	160 0	161 6
Cotton, ,,	260 0	234 0	112 0	130 0	130 0	129 0	112 0	177 0	130 0	132 0	155 0
Flax, ,,	68 0	71 0	81 0	82 0	76 0	68 0	72 0	109 0	120 0	84 0	83 0
Hemp, ,,	65 0	41 0	53 0	50 0	53 0	55 0	62 0	93 0	95 0	66 0	63 6

Notes	1801		1802		1803		1804		1805		1806		1807		1808		1809		1810		1801–10	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Hops, cwt. . .	185	0	164	0	160	0	95	0	110	0	120	0	119	0	100	0	98	0	108	0	136	0
Indigo, lb. . . .	6	10	7	6	8	0	7	9	8	3	9	6	7	0	6	3	6	4	7	0	7	6
Iron, cwt. . . .	7	3	7	3	7	3	8	0	8	0	8	0	8	0	8	0	8	0	8	0	7	9
Oil, gallon . . .	5	1	4	10	5	1	5	2	6	0	5	10	5	7	6	5	5	10	5	2	5	6
Pepper, cwt. . .	140	0	138	0	121	0	95	0	93	0	77	0	75	0	85	0	102	0	95	0	102	0
Rice, ,, . .	38	0	35	0	34	0	35	0	38	0	36	0	30	0	49	0	49	0	28	0	37	3
Rum, gallon . .	6	3	5	1	5	3	4	7	4	11	3	11	3	11	5	2	5	3	5	7	5	0
Silk, lb.	23	0	25	0	22	0	23	0	25	0	30	0	29	0	32	0	32	0	41	0	28	3
Sugar, cwt. . . .	54	0	39	0	45	0	56	0	53	0	43	0	34	0	40	0	43	0	48	0	45	6
Tea, lb.	3	3	3	4	3	1	3	1	3	4	3	0	3	3	3	4	3	5	3	5	3	4
Timber, load . .	102	0	69	0	97	0	70	0	70	0	101	0	125	0	235	0	260	0	200	0	133	0
Tin, cwt. . . .	111	0	114	0	116	0	116	0	118	0	126	0	128	0	119	0	124	0	151	0	122	0
Tobacco, cwt. . .	54	0	47	0	49	0	58	0	54	0	56	0	56	0	128	0	126	0	74	0	70	0
Wheat, quarter .	128	0	67	0	60	0	69	6	88	0	88	0	78	0	85	0	106	0	112	0	88	0
Wool, lb. . . .	5	6	6	0	6	2	6	8	6	8	6	8	6	8	8	6	19	0	10	6	8	3

The above prices were in Bank of England notes, but the values in gold were as follows :—

Gold	1801		1802		1803		1804		1805		1806		1807		1808		1809		1810		1801–10	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Coffee, cwt. . .	87	0	73	0	105	0	129	0	140	0	112	0	97	0	85	6	85	0	81	0	99	6
Copper, ,, . .	147	0	135	0	131	0	148	0	176	0	185	0	150	0	169	0	145	0	140	0	152	6
Cotton, ,, . .	240	0	218	0	109	0	126	0	126	0	125	0	109	0	172	0	118	0	116	0	146	0
Flax, ,, . .	63	0	66	0	78	0	79	6	74	0	66	0	70	0	106	0	109	0	73	0	78	6
Hemp, ,, . .	60	0	38	0	51	0	48	6	51	6	53	6	60	0	90	0	86	0	58	0	59	9
Hops, ,, . .	170	0	153	0	155	0	92	0	107	0	116	0	115	0	97	0	89	0	94	0	119	0
Indigo, lb. . . .	6	3	7	0	7	8	7	5	7	11	9	2	6	9	6	0	5	9	6	2	7	0
Iron, cwt. . . .	6	8	6	9	7	0	7	8	7	8	7	8	7	8	7	8	7	4	7	0	7	4
Oil, gallon . . .	4	8	4	6	4	10	5	0	5	9	5	8	5	5	6	2	5	4	4	6	5	3
Pepper, cwt. . .	129	0	128	0	117	0	92	0	90	0	75	0	73	0	82	6	93	0	83	0	96	4
Rice, ,, . .	35	0	32	0	33	0	34	0	37	0	35	0	29	0	47	6	44	6	25	0	35	3
Rum, gallon . .	5	9	4	9	5	1	4	5	4	9	3	9	3	9	5	0	4	10	5	0	4	9
Silk, lb.	21	0	23	0	21	6	22	3	24	3	29	0	28	0	31	0	29	0	36	0	26	6
Sugar, cwt. . . .	50	0	36	0	43	6	54	6	51	6	41	6	33	0	38	6	39	0	42	0	43	2
Tea, lb.	3	0	3	1	3	0	3	0	3	2	2	11	3	2	3	3	3	2	3	0	3	1
Timber, load . .	94	0	64	0	94	0	68	0	68	0	98	0	121	0	228	0	237	0	175	0	124	6
Tin, cwt. . . .	102	0	106	0	112	0	112	0	114	0	122	0	124	0	115	0	113	0	132	0	115	3
Tobacco, cwt. . .	50	0	44	0	47	6	55	4	52	6	54	6	54	6	124	0	115	0	65	0	66	4
Wheat, quarter .	118	0	62	0	58	0	67	6	85	6	85	6	76	0	82	6	96	0	98	0	83	0
Wool, lb. . . .	5	6	5	7	5	11	6	5	6	5	6	5	6	5	8	2	17	0	9	3	7	8

Notes	1811		1812		1813		1814		1815		1816		1817		1818		1819		1820		1811–20	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Coffee, cwt. . .	50	0	45	0	75	0	87	0	78	0	65	0	75	0	115	0	113	0	109	0	81	3
Copper, ,, . .	148	0	138	0	133	0	130	0	130	0	108	0	119	0	123	0	133	0	115	0	128	0
Cotton, ,, . .	97	0	116	0	196	0	242	0	177	0	160	0	186	0	177	0	140	0	102	0	159	0
Flax, ,, . .	88	0	102	0	89	0	76	0	73	0	56	0	61	0	68	0	56	0	52	0	72	0
Hemp, ,, . .	77	0	92	0	80	0	57	0	42	0	33	0	33	0	38	0	35	0	33	0	52	0
Hops, ,, . .	146	0	200	0	310	0	170	0	220	0	240	0	490	0	370	0	128	0	91	0	236	6
Indigo, lb. . . .	9	0	10	3	12	9	13	6	10	6	9	10	10	0	8	7	8	0	7	3	10	1
Iron, cwt. . . .	8	0	8	0	8	0	8	0	8	0	8	0	8	0	8	0	8	11	8	5	8	2
Oil, gallon . . .	5	5	7	2	7	6	6	2	6	2	6	0	6	11	6	6	6	2	5	0	6	4
Pepper, cwt. . .	71	0	77	0	117	0	154	0	97	0	77	0	79	0	85	0	70	0	61	0	88	4
Rice, ,, . .	32	0	61	0	66	0	43	0	34	0	39	0	43	0	47	0	32	0	37	0	43	6
Rum, gallon . .	5	3	5	4	4	9	6	3	4	9	3	10	4	1	4	5	3	3	3	10	4	10
Silk, lb.	43	0	31	0	25	0	21	0	20	1	17	0	22	0	24	0	23	0	22	0	24	10
Sugar, cwt. . . .	40	0	45	0	63	0	76	0	67	0	52	0	49	0	51	0	43	0	36	0	52	3
Tea, lb.	3	4	3	4	3	4	3	7	3	3	3	3	3	2	2	11	2	11	3	0	3	3
Timber, load . .	225	0	185	0	145	0	122	0	88	0	60	0	63	0	70	0	60	0	55	0	107	4
Tin, cwt. . . .	165	0	135	0	140	0	170	0	144	0	119	0	100	0	95	0	79	0	79	0	122	6
Tobacco, cwt. . .	56	0	48	0	140	0	305	0	177	0	117	0	88	0	93	0	74	0	65	0	116	4
Wheat, quarter .	108	0	118	0	120	0	85	0	76	0	82	0	116	0	98	0	78	0	76	0	95	6
Wool, lb. . . .	8	3	9	3	8	9	8	0	7	0	6	6	6	6	6	6	5	4	4	0	7	0

The prices in the above decade as above given were in paper-money ; the gold value was as follows :—

Gold	1811		1812		1813		1814		1815		1816		1817		1818		1819		1820		1811–20	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Coffee, cwt. . .	42	0	36	0	56	0	70	0	65	0	62	0	73	6	112	0	109	0	109	0	73	6
Copper, ,, . .	123	0	110	0	100	0	104	0	108	0	104	0	116	6	119	0	128	0	115	0	118	0
Cotton, ,, . .	81	0	92	0	146	0	194	0	148	0	154	0	186	0	172	0	134	0	102	0	141	0

Gold	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	1811–20
	s. d.	s. d.	s. d.	s. d.	s. d.	s.. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Flax, cwt.	73 0	82 0	67 0	61 0	61 0	54 0	59 6	66 0	54 0	52 0	63 0
Hemp, ,,	64 0	74 0	60 0	45 0	35 0	31 6	32 4	37 0	33 6	33 0	44 6
Hops, ,,	122 0	160 0	232 0	136 0	183 0	230 0	480 0	359 0	123 0	91 0	212 0
Indigo, lb.	7 6	8 1	9 6	10 8	8 9	9 5	9 9	8 4	7 8	7 3	8 8
Iron, cwt.	6 8	6 4	6 0	6 4	6 8	7 8	7 10	7 9	8 7	8 5	7 3
Oil, gallon	4 6	5 8	5 7	4 10	5 2	5 9	6 9	6 4	5 11	5 0	5 8
Pepper, cwt.	59 0	62 0	84 0	123 0	81 0	74 0	77 0	82 6	67 0	61 0	77 0
Rice ,,	.27 0	49 0	49 0	34 0	28 0	37 6	42 0	45 6	31 0	37 0	38 0
Rum, gallon	4 5	4 3	5 1	5 0	4 0	3 8	4 0	4 3	3 1	3 10	4 3
Silk, lb.	36 0	25 0	18 6	17 0	16 8	16 3	21 6	23 3	22 0	22 0	22 0
Sugar, cwt.	33 0	36 0	47 0	61 0	56 0	50 0	48 0	49 6	41 0	36 0	45 8
Tea, lb.	2 9	2 8	2 6	2 10	2 9	3 1	3 1	2 10	2 10	3 0	2 10
Timber, load	188 0	148 0	109 0	98 0	73 0	57 6	61 6	68 0	57 6	55 0	91 6
Tin, cwt.	138 0	108 0	105 0	136 0	120 0	114 0	98 0	92 0	76 0	79 0	106 5
Tobacco, cwt.	47 0	38 0	105 0	244 0	147 0	112 0	86 0	90 0	71 0	65 0	100 6
Wheat, quarter	90 0	94 0	90 0	68 0	63 0	78 6	113 6	95 0	75 0	76 0	84 4
Wool, lb.	7 0	7 4	6 7	6 4	5 10	6 3	6 4	6 4	5 2	4 0	6 1

In 1820 gold and paper money were of equal value.

	1821	1822	1823	1824	1825	1826	1827	1828	1829	1830	1821–30
	s. d.	s. d.	s. d.	s. d.	s.. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Coffee, cwt.	102 0	94 0	80 0	64 0	63 0	52 0	46 0	41 0	35 0	34 0	61 3
Copper, ,,	99 0	101 0	105 0	105 0	100 0	115 0	115 0	110 0	97 0	89 0	103 6
Cotton, ,,	84 0	83 0	80 0	75 0	120 0	77 0	58 0	57 0	57 0	60 0	75 0
Flax, ,,	50 0	48 0	54 0	46 0	46 0	37 0	37 0	35 0	36 0	42 0	43 0
Hemp, ,,	34 0	35 0	33 0	36 0	42 0	41 0	41 0	39 0	42 0	41 0	38 6
Hops, ,,	86 0	86 0	105 0	242 0	260 0	250 0	112 0	107 0	165 0	228 0	164 0
Indigo, lb.	9 0	10 0	9 6	10 1	13 0	11 0	11 10	10 4	8 6	8 9	10 3
Iron, cwt.	6 10	6 6	6 3	8 6	10 10	8 3	7 3	6 6	5 9	5 2	7 3
Oil, gallon	4 2	3 9	3 9	3 9	3 7	3 4	3 10	3 5	3 6	3 11	3 8
Pepper, cwt.	66 0	67 0	60 0	52 0	65 0	51 0	38 0	33 0	33 0	36 0	50 1
Rice, ,,	33 0	33 0	38 0	34 0	37 0	35 0	39 0	36 0	35 0	34 0	35 6
Rum, gallon	2 10	2 5	2 6	2 3	2 9	3 5	3 10	4 0	3 6	2 10	3 0
Silk, lb.	20 0	21 0	19 0	18 0	22 0	16 0	20 0	21 0	15 0	14 0	18 6
Sugar, cwt.	32 0	31 0	32 0	32 0	37 0	35 0	34 0	35 0	28 0	23 0	32 0
Tea, lb.	3 0	3 2	3 2	3 2	3 2	2 10	2 10	2 8	2 9	2 9	3 0
Timber, load	60 0	50 0	52 0	51 0	58 0	48 0	46 0	42 0	46 0	41 0	49 6
Tin, cwt.	79 0	89 0	101 0	89 0	100 0	86 0	81 0	76 0	79 0	77 0	85 6
Tobacco, cwt.	48 0	55 0	50 0	47 0	56 0	56 0	48 0	38 0	47 0	48 0	49 4
Wheat, quarter	71 0	53 0	57 0	72 0	84 0	73 0	58 6	60 6	66 0	64 0	66 0
Wool, lb.	3 6	4 0	4 2	3 8	3 10	3 6	3 0	2 9	2 6	2 4	3 4

	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	1831–40
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Coffee, cwt.	56 0	76 0	78 0	63 0	75 0	81 0	81 0	78 0	90 0	86 0	77 0
Copper, ,,	87 0	91 0	98 0	99 0	94 0	105 0	92 0	90 0	94 0	98 0	95 0
Cotton, ,,	58 0	58 0	80 0	79 0	95 0	93 0	84 0	63 0	70 0	56 0	73 6
Flax, ,,	48 0	47 0	39 0	48 0	55 0	46 0	40 0	37 0	39 0	39 0	44 0
Hemp, ,,	40 0	32 0	26 0	25 0	25 0	29 0	31 0	35 0	41 0	38 0	32 3
Hops, ,,	197 0	165 0	167 0	161 0	132 0	140 0	132 0	130 0	110 0	...	148 3
Indigo, lb.	6 6	5 5	6 5	6 6	6 1	6 7	7 3	7 6	8 1	6 1	6 8
Iron, cwt.	5 0	5 2	5 6	5 3	5 3	7 2	5 6	6 1	6 0	9 2	6 0
Oil, gallon	3 5	3 8	3 11	4 0	4 9	4 10	4 2	4 7	4 9	5 2	4 4
Pepper, cwt.	37 0	36 0	36 0	38 0	42 0	43 0	35 0	38 0	39 0	40 0	38 6
Rice, ,,	34 0	37 0	35 0	32 0	31 0	31 0	32 0	36 0	41 0	...	34 6
Rum, gallon	2 9	2 10	3 0	3 1	3 2	3 10	4 1	4 3	5 4	5 1	3 9
Silk, lb.	15 0	14 0	18 0	18 0	20 0	23 0	19 0	21 0	24 0	25 0	19 8
Sugar, cwt.	24 0	27 0	28 0	32 0	34 0	42 0	35 0	37 0	38 0	47 0	34 6
Tea, lb.	2 9	2 7	2 6	2 10	2 4	2 0	1 9	2 2	1 10	2 8	2 4
Timber, load	51 0	46 0	49 0	49 0	49 0	55 0	54 0	52 0	...	106 0	55 6
Tin, cwt.	77 0	76 0	75 0	78 0	85 0	116 0	90 0	90 0	85 0	82 0	85 0
Tobacco, cwt.	37 0	37 0	41 0	47 0	51 0	61 0	52 0	55 0	78 0	65 0	52 6
Wheat, quarter	66 ɔ	59 0	53 0	46 0	39 0	49 6	56 0	65 0	71 0	66 0	57 0
Wool, lb.	2 8	2 6	2 7	3 3	2 9	3 0	2 8	2 5	2 7	2 4	2 7

	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1841–50
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Coffee, cwt.	99 0	93 0	83 0	81 0	72 0	70 0	70 0	74 0	60 0	65 0	76 6
Copper, ,,	98 0	91 0	84 0	84 0	88 0	91 0	93 0	89 0	84 0	86 0	89 0
Cotton, ,,	60 0	47 0	45 0	47 0	38 0	43 0	61 0	47 0	48 0	65 0	50 3
Flax, ,,	39 0	...	...	34 0	...	...	...	43 0	37 0	40 0	39 0

	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1841-50
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Hemp, cwt.	38 0	34 0	30 0	30 0	29 0	33 0	39 0	32 0	30 0	31 0	32 6
Indigo, lb.	5 6	4 9	5 0	4 0	4 2	3 10	3 10	3 0	3 4	4 2	4 3
Iron, cwt.	7 6	6 2	4 10	5 6	8 9	9 6	9 10	7 9	6 5	5 9	7 3
Oil, gallon	6 2	5 4	4 1	3 10	3 6	3 6	4 2	3 8	3 5	3 7	4 1
Pepper, cwt.	37 0	36 0	37 0	33 0	30 0	30 0	28 0	28 0	28 0	34 0	32 0
Rum, gallon	4 6	4 1	...	2 8	2 7	2 10	4 2	3 4	2 6	2 5	3 3
Silk, lb.	21 0	20 0	19 0	20 0	18 0	16 0	14 0	14 0	16 0	18 0	17 6
Sugar, cwt.	43 0	37 0	33 0	33 0	34 0	35 0	28 0	23 0	26 0	28 0	32 0
Tea, lb.	2 5	2 2	1 7	1 8	1 7	1 6	1 11	1 2	1 3	1 3	1 8
Timber, load	104 0	95 0	89 0	83 0	83 0	85 0	85 0	75 0	68 0	63 0	83 0
Tin, cwt.	82 0	72 0	65 0	73 0	87 0	99 0	93 0	80 0	82 0	78 0	81 0
Tobacco, cwt.	47 0	38 0	36 0	34 0	32 0	36 0	37 0	38 0	42 0	65 0	40 6
Wheat, quarter	64 0	57 0	50 0	51 0	51 0	55 0	70 0	51 0	44 0	40 0	53 3
Wool, lb.	2 3	2 3	2 3	2 1	2 5	2 0	1 10	1 9	1 5	1 5	2 0

	1851	1852	1853	1854	1855	1856	1857	1858	1859	1851-59
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Coffee, cwt.	68 0	58 0	68 0	68 0	67 0	67 0	74 0	56 0	64 0	65 6
Copper, ,,	86 0	95 0	112 0	126 0	126 0	117 0	117 0	107 0	107 0	110 6
Cotton, ,,	61 0	54 0	53 0	52 0	52 0	58 0	75 0	57 0	65 0	58 6
Flax, ,,	40 0	48 0	49 0	47 0	56 0	53 0	57 0	57 0	57 0	51 6
Hemp, ,,	31 0	34 0	38 0	56 0	51 0	38 0	35 0	29 0	29 0	38 0
Indigo, lb.	4 4	4 4	4 9	4 9	4 3	4 3	4 8	6 3	4 6	4 8
Iron, cwt.	5 8	6 4	9 6	10 0	8 6	9 0	8 3	7 3	7 0	8 0
Oil, gallon	3 2	4 0	5 2	4 7	4 6	4 2	4 7	4 0	3 11	4 3
Pepper, cwt.	28 0	32 0	37 0	42 0	42 0	50 0	...	...	...	38 6
Butter, ,,	76 0	74 0	92 0	101 0	103 0	107 0	100 0	110 0	105 0	96 6
Rum, gallon	2 5	2 2	3 2	3 10	3 11	3 6	4 8	3 10	3 2	3 4
Silk, lb.	18 0	17 0	19 0	14 0	14 0	17 0	23 0	18 0	16 0	17 4
Sugar, cwt.	27 0	24 0	25 0	25 0	35 0	36 0	42 0	25 0	24 0	29 3
Tea, lb.	1 2	1 1	1 5	1 4	1 6	1 6	1 3	1 1	0 11	1 3
Timber, load	63 0	61 0	78 0	83 0	80 0	73 0	69 0	71 0	63 0	71 3
Tin, cwt.	84 0	91 0	113 0	124 0	117 0	133 0	143 0	109 0	124 0	115 0
Tobacco, cwt.	102 0	56 0	65 0	65 0	70 0	71 0	90 0	82 0	70 0	74 6
Wheat, quarter	39 0	41 0	53 0	72 0	75 0	69 0	56 0	44 0	44 0	55 0
Wool, lb.	1 5	1 5	1 5	1 4	1 7	2 0	1 8	1 2	1 3	1 6

PRICES OF BRITISH IMPORTS AND EXPORTS, 1854–88.

There are ninety-five principal articles of British commerce, and these attained their highest and lowest prices in the years stated below:—

Years	Highest	Lowest	Years	Highest	Lowest
1854-55	12	11	Brought forward	75	25
1856-57	19	0	1874-75	6	0
1858-59	1	2	1876-77	2	0
1860-61	1	0	1878-79	2	7
1862-63	3	4	1880-81	1	0
1864-65	12	3	1882-83	3	1
1866-67	9	1	1884-85	2	7
1868-69	7	3	1886-87	2	30
1870-71	2	1	1888	0	16
1872-73	9	0	1889	2	9
Total	75	25	Total	95	95

The highest and lowest prices recorded, and the years in which these prices occurred, are given as follows:—

	Highest	Lowest	Year of Price Highest	Year of Price Lowest	Average Price for 36 Years
	£ s. d.	£ s. d.			£ s. d.
Bacon, cwt.	3 6 0	1 15 0	1869	1862	2 7 6
Barley, ,,	0 10 2	0 5 3	1868	1887	0 8 1
Beef, ,,	2 13 0	1 9 0	1883	1863	2 2 6
Brandy, gall.	0 13 0	0 5 1	1857	1866	0 8 3
Butter, ,,	5 17 0	3 8 0	1876	1854	4 17 6

	Highest	Lowest	Year of Price Highest	Year of Price Lowest	Average Price for 36 Years
	£ s. d.	£ s. d.			£ s. d.
Cheese, cwt.	3 4 0	2 3 0	1866	1879	2 13 0
Cigars, lb.	0 14 3	0 6 4	1882	1869	0 11 9
Cochineal, lb.	0 4 1	0 1 0	1857	1884	0 2 7
Cocoa, cwt.	4 13 6	1 8 0	1879	1854	3 3 0
Coffee, ,,	5 1 0	2 3 0	1874	1858	3 8 0
Copper ore, cwt.	1 9 0	0 6 10	1856	1886	0 14 0
Cotton, cwt.	12 15 0	2 10 0	1864	1886	4 1 0
Eggs (120)	0 8 7	0 4 7	1874	1854	0 6 7
Flax, cwt.	3 0 0	1 14 0	1856	1888	2 7 6
Flour, ,,	1 4 0	0 11 1	1855	1887	0 16 2
Guano, cwt.	0 13 0	0 7 0	1857	1889	0 11 0
Hemp, ,,	2 14 0	1 8 0	1854	1879	1 14 0
Hides ,,	4 3 0	2 7 0	1873	1854	3 8 0
Hops, ,,	9 5 0	2 5 0	1882	1859	5 0 6
Indigo, lb.	0 6 10	0 3 6	1868	1889	0 5 2
Jute, cwt.	1 5 0	0 11 3	1863	1886	0 16 4
Lard, ,,	3 13 0	1 14 0	1869	1879	2 11 0
Maize, cwt.	0 11 0	0 4 9	1855	1889	0 7 2
Molasses, cwt.	0 18 0	0 6 4	1857	1888	0 10 6
Nitre, cwt.	1 0 0	0 9 4	1857	1889	0 14 0
Oats, ,,	0 9 6	0 4 10	1868	1888	0 7 7
Oil, olive, tun	67 0 0	35 15 0	1868	1889	41 5 0
Oranges, bushel	0 13 3	0 5 11	1862	1889	0 9 6
Pepper, cwt.	76 0 0	33 0 0	1887	1864	48 0 0
Pork, ,,	3 2 0	1 11 0	1870	1879	2 2 0
Potatoes	0 8 0	0 3 0	1889	1854	0 5 0
Raisins	2 8 0	1 5 0	1856	1862	1 14 0
Rice	0 14 8	0 7 6	1867	1886	0 10 6
Rum	0 3 8	0 1 6	1857	1886	0 2 4

	Highest	Lowest	Year of Price Highest	Year of Price Lowest	Average Price for 36 Years
	£ s. d.	£ s. d.			£ s. d.
Saltpetre	2 0 0	0 16 10	1860	1885	1 6 0
Seed, clover	3 17 0	2 0 10	1856	1886	2 13 0
Sheep, each	2 9 0	1 11 0	1878	1868	2 1 6
Silk, lb.	1 7 0	0 12 3	1866	1888	1 2 6
Sugar, cwt.	2 6 0	0 15 8	1857	1887	1 11 0
Tallow, ,,	3 3 0	1 4 0	1854	1887	2 3 0
Tea, ,,	9 6 0	4 18 0	1865	1887	7 8 0
Tobacco, cwt.	7 2 0	3 2 0	1863	1878	3 19 0
Wheat, ,,	0 16 10	0 7 6	1854	1886	0 11 3
Wine, gall.	0 14 9	0 3 10	1856	1864	0 7 9
Wood, load	3 16 0	1 18 0	1854	1887	2 17 6
Wool, cwt.	10 4 0	4 5 0	1857	1886	7 8 0

The highest and lowest prices for exports, and the years in which they occurred, are shown as follows:—

	Highest	Lowest	Year of Price Highest	Year of Price Lowest	Average Price for 36 Years
	£ s. d.	£ s. d.			£ s. d.
Alkali, ton	12 7 0	5 3 0	1873	1888	8 5 0
Bags, gross	9 0 0	2 6 0	1864	1886	4 18 0
Beer, barrel	4 8 0	3 6 0	1874	1854	3 16 0
Books, cwt.	15 0 0	8 7 0	1855	1889	11 15 0
Boots, doz. pair	3 12 0	2 14 0	1864	1888	3 2 0
Brass, cwt.	6 11 0	3 15 0	1857	1886	5 3 6
Butter, ,,	7 0 0	4 12 0	1884	1854	5 12 0
Candles, cwt.	8 13 0	2 1 0	1857	1888	4 2 6
Carpet, doz. yds.	2 0 0	1 4 0	1867	1887	1 11 6
Cement, ton	3 16 0	1 18 0	1856	1888	2 11 3
Cheese, cwt.	4 8 0	3 16 0	1870	1854	4 2 3
Cloth, doz. yds.	2 1 0	1 4 0	1884	1854	1 14 6
Coal, ton	1 1 0	0 8 4	1873	1887	0 9 10
Copper, cwt.	6 0 0	2 4 0	1857	1886	4 4 6

	Highest	Lowest	Year of Price Highest	Year of Price Lowest	Average Price for 36 Years
	£ s. d.	£ s. d.			£ s. d.
Cordage, cwt.	3 3 0	2 1 0	1854	1886	2 12 3
Cottons, 100 yds.	2 8 4	0 18 0	1864	1886	1 6 3
,, printed, 100 yds.	2 12 6	1 5 0	1864	1889	1 15 8
Firearms, each	2 1 0	0 18 0	1875	1854	1 9 0
Flannel, doz. yds.	1 0 0	0 11 0	1864	1888	0 16 3
Glass, flint, cwt.	3 13 0	2 2 0	1855	1885	2 15 0
,, bottles, ton	11 10 0	9 5 0	1854	1883	10 4 0
Gunpowder, cwt.	3 12 0	2 14 0	1859	1868	3 1 0
Hats, dozen	1 19 0	0 19 0	1865	1886	1 9 9
Herrings, barrel	1 15 0	1 1 0	1881	1887	1 7 0
Horses	81 0 0	35 0 0	1876	1870	58 0 0
Iron, pig, ton	6 5 0	2 3 0	1873	1888	3 1 6
,, rail, ,,	13 5 0	4 11 0	1873	1887	7 16 0
,, hoop, ton.	14 12 0	6 1 0	1873	1887	10 5 0
,, wire, ,,	23 10 0	12 10 0	1873	1885	17 15 0
Jute, 100 yards	2 10 0	0 17 0	1854	1886	1 12 0
Lead, ton	25 0 0	12 5 0	1856	1885	19 18 0
Leather, cwt.	11 5 0	6 17 0	1866	1879	8 14 0
Linens, 100 yds.	3 11 0	2 6 0	1864	1888	2 18 9
,, printed, ,,	4 2 6	2 9 0	1866	1888	3 4 10
Oil-seed, ton.	34 10 0	18 7 0	1866	1886	27 5 0
Paper, cwt.	4 16 0	1 13 0	1854	1888	3 2 0
Sailcloth, 100 yds.	5 17 0	4 8 0	1874	1888	5 4 0
Salt, ton	0 19 0	0 9 0	1873	1863	0 11 9
Soap, cwt.	1 8 0	0 19 0	1869	1888	1 4 2
Silk, doz. yds.	2 10 0	1 17 0	1887	1889	2 1 3
Spirits, gallon	0 7 0	0 2 5	1889	1865	0 4 4
Steel bar, ton	38 6 0	15 7 0	1874	1889	30 10 0
Sugar, cwt.	3 0 0	0 13 0	1857	1887	1 13 9
Tin, ,,	7 10 0	3 6 0	1872	1878	5 7 0
Wool, ,,	11 4 0	4 9 0	1865	1885	7 15 0
Yarn, cotton, cwt.	13 10 0	5 1 0	1864	1886	6 17 0
,, linen, ,,	8 8 0	5 12 0	1864	1855	6 17 2
,, woollen, ,,	19 10 0	10 12 0	1866	1888	14 11 0
Zinc, ton	32 0 0	13 6 0	1857	1885	21 2 0

British Imports from 1854 to 1860:—

	1854	1855	1856	1857	1858	1859	1860	1854-60
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Bacon, cwt.	40 0	48 0	55 0	55 0	46 0	48 0	53 0	49 0
Barley, ,,	9 0	8 7	9 6	8 9	7 9	7 6	9 6	8 8
Beans, ,,	10 2	9 7	8 2	9 0	8 4	8 3	9 9	8 6
Beef, ,,	38 0	41 6	37 6	51 0	39 0	41 0	31 4	40 0
Brandy, gallon	8 4	9 9	10 2	12 10	7 7	7 0	9 6	9 4
Butter, cwt.	68 6	70 0	72 6	80 0	73 6	71 0	84 8	74 6
Cheese, cwt.	51 9	52 10	53 0	47 3	45 3	51 0	56 10	51 6
Cigars, lb.	10 6	11 6	11 0	11 5	11 1	11 0	11 7	11 3
Cochineal, lb.	4 0	3 11	3 10	4 1	3 10	3 8	3 4	3 10
Cocoa, cwt.	32 0	40 0	50 0	80 0	50 0	50 0	62 0	52 0
Coffee, ,,	45 6	46 0	46 9	48 8	42 6	50 9	58 6	48 6
Copper ore, cwt.	24 0	21 6	23 0	17 0	18 10	19 4	18 10	20 6
Cotton, ,,	53 7	55 5	60 8	73 9	67 0	65 10	60 4	62 4
Eggs (120)	4 6	5 8	5 8	6 0	5 5	5 5	7 0	5 8
Flax, cwt.	51 3	51 0	44 0	35 8	46 3	52 4	50 3	47 0
Flour, cwt.	21 6	24 0	20 0	17 0	15 0	14 0	16 4	18 6
Guano, ,,	11 0	11 4	11 6	13 0	12 6	12 0	12 0	11 10
Hams, ,,	60 0	66 0	69 6	68 9	59 0	56 7	68 9	64 0
Hemp, ,,	59 2	43 0	35 0	32 2	28 8	27 10	30 0	36 6
Hides, dry, cwt.	56 0	67 8	86 4	95 9	65 2	74 5	75 6	74 6
,, wet, ,,	49 0	56 0	74 8	80 6	63 0	75 3	72 6	67 6
Indigo, lb.	4 2	5 0	5 6	6 0	6 5	5 8	6 0	5 6
Lard, cwt.	51 6	52 6	62 3	66 9	55 0	56 7	59 3	57 6
Linseed, cwt.	15 6	16 0	12 6	14 0	12 8	11 0	12 1	13 6
Maize, ,,	10 3	11 0	8 0	8 10	7 10	7 0	8 4	8 8
Molasses, ,,	11 0	13 8	15 6	19 4	9 9	10 0	12 3	13 2
Nitre, ,,	17 3	16 6	17 0	20 0	16 0	15 0	13 6	16 6
Oats, ,,	8 6	8 10	8 6	8 3	7 8	7 4	8 0	8 2
Oil, olive, gallon	4 6	4 4	4 1	4 3	3 9	4 0	4 8	4 3
,, palm, cwt.	46 0	43 6	43 0	43 9	38 10	45 1	44 8	43 6
Oranges, bushel	9 3	10 10	13 0	12 10	11 5	11 9	10 6	11 6

	1854	1855	1856	1857	1858	1859	1860	1854–60
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Peas, cwt.	11 8	12 0	10 8	9 7	10 2	9 4	10 0	10 6
Pepper, cwt.	47 0	49 0	47 0	46 0	45 0	42 0	42 0	45 6
Pork, ,,	45 0	44 6	45 6	47 6	41 4	41 4	43 5	44 0
Potatoes, ,,	3 0	3 6	3 6	3 8	3 10	3 2	4 6	3 7
Raisins, ,,	32 6	33 0	47 8	44 8	27 3	37 2	33 10	36 6
Rice, ,,	14 0	14 6	10 6	11 3	8 10	10 9	13 0	11 10
Rum, gallon	3 8	3 4	3 2	3 8	3 2	3 2	3 0	3 4
Saltpetre, cwt.	27 6	28 8	35 0	39 8	38 8	37 4	40 4	35 4
Seeds, clover, cwt.	52 3	68 0	77 4	71 6	57 8	67 10	62 3	65 3
Sheep, each	30 0	35 6	37 0	48 6	46 0	42 4	43 0	40 4
Silk, lb.	21 6	22 9	32 6	35 10	28 0	32 0	34 7	29 6
Sugar raw, cwt.	26 0	30 0	33 0	42 6	33 0	30 4	31 3	32 4
,, refined, cwt.	29 0	34 3	36 0	45 8	39 7	36 4	34 3	36 6
Tallow, cwt.	63 0	57 0	52 6	53 9	49 0	54 9	56 2	55 2
Tea ,,	145 0	140 0	135 0	164 0	154 0	173 0	173 0	155 0
Tobacco, ,,	51 0	58 0	82 0	88 0	70 0	61 0	58 0	67 0
Wheat ,,	16 6	15 0	15 3	12 10	10 7	10 7	13 8	13 6
Wine, gallon	12 4	13 4	14 9	12 4	10 4	8 6	6 1	11 2
Wood, load	76 0	73 0	62 0	60 9	54 0	58 4	63 0	64 0
,, staves, load	140 0	148 0	120 0	128 0	105 0	96 0	120 0	122 6
Wool, cwt.	168 0	172 0	196 0	210 0	191 0	192 0	205 0	191 0

British imports from 1861 to 1870:—

	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1861–70
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Bacon, cwt.	48 2	35 1	37 0	39 9	54 10	54 2	51 8	55 5	65 6	62 2	50 6
Barley, ,,	9 4	8 8	8 6	8 0	6 6	8 10	10 0	10 2	8 4	7 9	8 8
Beans, ,,	8 8	7 6	7 6	7 7	...	9 7	...	...	...	...	8 2
Beef, ,,	32 6	35 7	28 8	29 9	33 0	45 3	50 5	44 10	36 2	42 9	38 0
Brandy, gallon	9 1	9 1	7 6	6 3	5 5	5 1	5 8	6 5	6 4	5 5	6 6
Butter, cwt.	90 4	86 0	81 0	101 0	105 2	97 0	103 0	116 0	110 0	117 0	101 0
Cheese, ,,	45 10	42 1	48 3	52 0	58 6	66 8	56 0	59 0	63 0	63 0	55 6
Cigars, lb.	13 0	13 0	13 0	12 4	12 0	12 0	7 10	7 9	6 4	8 2	10 6
Cochineal, lb.	2 8	2 8	3 1	3 2	3 4	3 6	3 0	2 11	2 6	2 2	2 11
Cocoa, cwt.	58 0	54 0	46 8	46 0	42 6	60 6	65 0	55 0	55 0	56 6	54 0
Coffee, ,,	55 6	66 4	69 2	66 0	63 6	56 2	71 0	63 0	63 0	61 6	63 6
Copper ore, cwt.	17 8	17 2	16 8	16 8	18 2	16 6	11 9	12 6	11 5	11 10	15 0
Cotton, cwt.	72 5	141 0	206 0	255 0	176 0	151 0	92 0	93 0	104 0	90 0	138 0
Eggs (120)	6 5	6 1	6 1	6 0	6 1	6 0	6 0	6 4	6 2	6 2	6 2
Fish, cwt.	...	...	...	...	21 3	24 10	22 1	20 5	20 0	20 0	21 6
Flax, ,,	48 5	56 0	53 7	53 3	52 0	55 4	59 0	57 8	56 6	51 10	54 4
Flour, ,,	15 5	14 4	12 8	11 10	12 6	15 0	19 6	18 4	14 0	14 1	14 9
Glass, ,,	...	...	...	...	16 0	16 0	16 0	16 0	14 0	14 0	15 4
Guano, cwt.	12 0	12 7	12 4	12 0	12 0	12 0	11 0	11 2	12 6	12 5	12 0
Hams, ,,	47 0	35 5	33 2	43 5	51 4	57 4	51 4	59 7	68 9	66 7	51 6
Hemp, ,,	30 7	35 6	40 5	33 2	31 1	31 1	37 6	39 3	37 3	37 8	35 4
Hides, dry, cwt.	71 7	70 0	69 4	74 0	74 0	69 0	64 0	70 0	69 6	70 6	70 3
,, wet, ,,	60 4	58 4	51 4	54 4	48 3	48 9	...	...	...	...	53 9
Indigo, lb.	6 8	6 6	5 0	5 6	5 7	5 7	6 0	6 8	6 6	6 2	6 0
Jute, cwt.	...	...	25 0	...	16 9	18 2	17 9	17 8	17 4	19 6	19 0
Lard, ,,	53 0	42 1	38 3	44 6	63 4	69 0	51 0	64 0	72 7	66 9	56 6
Linseed, cwt.	13 2	14 0	15 0	13 2	13 6	15 0	15 0	13 6	13 4	13 6	14 0
Maize, ,,	7 10	7 0	6 9	7 2	6 11	6 9	9 0	8 5	6 9	6 11	7 5
Molasses, ,,	9 11	9 5	9 2	13 3	12 1	13 3	14 0	12 3	12 8	9 6	11 6
Nitre, ,,	13 0	13 7	14 3	13 6	13 0	11 6	11 0	13 0	15 6	15 6	13 8
Oats, ,,	8 1	8 2	6 10	6 6	7 2	8 2	9 2	9 6	8 4	8 0	8 0
Oil, olive, gallon	4 8	4 6	4 8	4 8	4 2	4 6	5 0	5 4	4 2	4 2	4 7
,, palm, cwt.	42 8	39 10	35 10	33 7	36 4	40 2	38 7	39 5	38 10	36 6	38 0
Oranges, bushel	11 3	13 3	12 6	12 1	12 1	12 1	10 2	9 7	9 6	6 8	10 10
Paper, cwt.	...	...	...	...	51 4	51 4	51 4	51 4	51 4	51 4	51 4
Pepper, cwt.	40 0	37 0	34 6	33 0	33 0	34 0	32 6	33 0	42 0	48 0	36 9
Petroleum, gallon	...	...	...	...	3 0	1 10	1 4	1 6	1 8	1 7	1 10
Pork, cwt.	45 3	33 0	31 5	39 3	41 6	50 0	46 8	50 6	60 4	62 3	46 0
Potatoes, cwt.	5 4	4 1	3 5	3 4	3 7	4 4	5 9	4 9	4 9	6 4	4 7
Rags, ,,	...	...	...	...	20 6	21 9	19 0	18 0	17 3	17 4	19 0
Raisins, ,,	28 6	25 0	27 3	30 0	32 4	28 2	28 9	32 10	35 8	32 6	30 0
Rice, ,,	12 6	11 10	11 11	11 2	12 4	13 1	14 8	12 4	10 8	10 7	12 1
Rum, gallon	2 7	2 2	2 0	2 3	2 8	2 6	2 0	2 3	2 4	2 4	2 4
Saltpetre, cwt.	32 6	34 8	36 9	32 6	24 9	20 6	18 6	20 5	22 1	26 0	26 9
Seeds, clover, cwt.	53 0	53 0	52 9	54 4	67 5	64 3	55 0	54 0	54 8	56 5	56 6
Sheep, each	45 0	42 7	35 0	36 8	50 0	50 0	31 0	34 0	34 0		39 6
Sheep-skins, each	...	...	...	...	1 0	1 2	1 3	1 1	1 1	1 3	1 2
Silk, lb.	28 3	27 5	25 4	27 11	28 11	29 4	25 9	24 9	24 6	26 0	26 9
Sugar, raw, cwt.	30 10	28 0	26 2	33 1	27 1	27 3	21 10	22 7	24 6	22 6	26 4

	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1861–70
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Sugar refined, cwt.	35 0	34 0	34 5	35 9	31 4	31 1	31 6	31 8	33 3	32 0	33 0
Sulphur, cwt.	...	...	...	...	7 4	6 10	6 6	6 9	7 8	7 3	7 0
Tallow, ,,	50 9	45 9	42 4	41 0	48 5	44 9	44 0	48 0	45 4	43 4	45 3
Tea, ,,	159 0	190 0	172 0	168 0	196 0	196 0	176 0	180 0	166 0	160 0	176 0
Tobacco, ,,	108 0	140 0	142 0	132 0	126 0	88 0	70 0	80 0	80 0	82 0	105 0
Wheat, ,,	13 6	11 10	9 9	9 9	9 4	11 7	14 5	13 6	10 4	10 6	11 6
Wine, gallon	7 3	4 8	4 4	3 10	4 2	7 5	6 3	6 5	6 2	5 5	5 7
Wood, load	66 0	66 0	66 0	72 0	65 0	54 0	58 0	60 0	65 0	65 0	63 6
,, staves	126 0	152 0	149 0	146 0	161 0	192 0	194 0	191 0	178 0	184 0	167 0
Wool, cwt.	180 0	180 0	174 0	201 0	180 0	193 0	152 0	133 0	127 0	134 0	165 0
Yeast, ,,	...	...	...	...	40 6	41 0	41 6	40 0	41 0	44 6	41 6

British imports from 1871 to 1880:—

	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1871–80
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Bacon, cwt.	49 3	41 0	40 10	45 9	52 4	53 5	47 10	38 7	34 4	40 0	44 6
Barley, ,,	8 0	8 3	8 8	9 4	8 5	7 8	8 4	7 10	8 4	8 6	8 4
Beef, ,,	42 1	36 9	40 0	40 0	42 2	45 8	49 9	48 5	47 9	47 8	44 0
Brandy, gallon	7 3	7 6	7 4	8 8	7 9	6 7	8 6	8 0	8 6	8 10	7 11
Butter, cwt.	104 0	106 0	109 0	112 0	116 0	117 0	117 0	111 0	102 0	105 0	110 0
Cheese, ,,	55 0	57 0	60 0	60 6	58 0	55 6	58 0	50 4	43 0	57 0	55 6
Cigars, lb.	13 0	14 2	13 9	13 9	13 9	14 3	12 3	12 9	12 0	13 9	13 4
Cochineal, lb.	2 4	2 4	2 4	2 2	2 2	2 0	2 3	2 1	2 4	2 8	2 3
Cocoa, cwt.	51 0	70 0	70 0	67 0	61 0	62 0	73 0	86 0	93 6	82 0	71 6
Coffee, ,,	63 0	71 0	88 0	101 0	95 0	94 0	97 0	93 0	88 0	89 0	88 0
Copper ore, cwt.	13 8	17 3	16 6	14 10	13 9	12 4	10 1	8 8	8 8	9 4	12 6
Cotton, cwt.	70 0	85 0	80 0	72 6	69 0	66 0	58 6	56 0	55 0	59 0	66 6
Eggs (120)	7 7	8 0	8 7	8 7	8 4	8 4	8 0	7 8	7 2	7 2	8 0
Fish, cwt.	23 6	25 7	28 0	29 8	30 2	30 3	30 7	31 0	28 6	24 10	28 3
Flax, ,,	47 0	52 3	50 0	48 9	53 0	55 3	49 3	48 0	45 3	46 2	49 6
Flour, ,,	17 6	18 8	18 10	18 3	15 9	15 10	18 6	17 4	15 10	16 6	17 3
Glass, ,,	15 0	17 3	18 9	17 6	16 9	15 9	14 7	13 8	14 2	14 4	15 9
Guano, ,,	12 0	10 2	11 5	12 0	11 4	11 6	10 10	10 2	9 2	10 0	10 10
Hams, ,,	60 0	52 0	55 0	55 0	59 6	59 9	54 5	48 0	43 9	46 6	53 6
Hemp, ,,	36 5	37 9	37 1	35 5	33 6	33 4	33 3	30 9	28 0	28 6	33 6
Hides, ,,	70 0	80 0	83 0	73 0	70 0	63 0	62 0	59 0	58 0	62 0	68 0
Hops, ,,	80 0	100 0	98 0	127 0	93 0	91 0	94 0	75 0	93 0	92 0	94 4
Indigo, lb.	5 0	5 1	5 0	4 6	4 10	4 3	4 10	4 4	4 2	5 3	4 9
Jute, cwt.	21 8	19 6	15 8	16 8	15 0	14 8	16 0	15 3	13 8	17 4	16 6
Leather, cwt.	...	...	...	182 0	167 0	168 0	158 0	146 0	170 0	168 0	166 0
Lard, ,,	55 0	45 0	44 0	47 0	60 0	56 0	50 0	39 0	33 9	40 0	47 0
Linseed, ,,	14 0	15 0	14 3	14 0	13 0	12 5	13 3	12 4	12 4	13 0	13 4
Maize, ,,	7 8	7 1	7 6	8 6	8 0	6 4	6 6	6 1	5 5	6 0	7 0
Molasses, ,,	9 10	10 1	9 5	10 9	11 0	9 4	9 6	8 8	7 5	8 2	9 4
Nitre, ,,	15 6	15 4	14 8	12 0	12 0	11 6	13 6	14 10	14 0	15 4	14 0
Oats, ,,	7 8	7 3	8 0	9 0	8 9	8 3	7 9	7 2	6 8	7 2	7 10
Oil, olive, gallon	3 10	4 0	3 6	3 6	3 6	3 7	3 9	4 0	3 7	3 7	3 7
,, palm, cwt.	34 9	35 10	33 8	33 7	33 4	34 9	35 7	34 9	30 6	29 5	33 7
Opium, lb.	...	...	...	22 1	21 0	19 8	19 3	15 6	15 2	17 10	18 9
Oranges, bushel	8 5	9 8	9 9	9 8	9 4	8 5	8 9	8 3	7 8	8 0	8 6
Paper, cwt.	51 3	56 4	60 10	53 0	48 0	48 8	50 0	49 6	37 5	36 7	49 4
Pepper, ,,	50 6	61 0	70 0	65 0	50 6	40 0	40 0	34 5	34 8	42 0	46 9
Petroleum, gallon	1 4	1 5	1 2	0 11	0 10	1 2	1 1	0 10	0 8	0 8	1 0
Pork, cwt.	46 10	41 0	44 5	43 8	44 3	42 10	40 0	33 10	31 4	33 5	40 3
Potatoes, cwt.	5 4	5 5	5 8	5 3	4 6	5 9	5 10	5 6	5 9	5 10	5 6
Rags, cwt.	16 6	16 9	17 8	17 0	17 4	16 6	15 0	15 2	15 4	15 3	16 4
Raisins, cwt.	33 2	37 3	35 3	36 3	37 9	36 3	34 3	31 8	34 4	36 10	35 3
Rice, ,,	10 2	10 0	9 10	10 4	9 0	9 0	10 6	10 6	10 2	9 6	9 11
Rum, gallon	2 0	2 0	2 2	2 3	2 4	2 1	2 0	1 10	1 8	1 9	2 0
Saltpetre, cwt.	25 5	26 1	26 4	22 10	20 4	18 3	22 3	21 0	19 0	22 2	22 5
Seeds, clover, cwt.	54 6	51 4	47 9	46 0	47 0	51 9	51 10	47 6	43 9	43 3	48 6
Sheep, each	39 0	41 0	43 0	42 0	44 0	43 .0	49 0	48 0	48 0	48 0	44 6
Sheep-skin, each	2 2	2 10	3 2	2 9	2 10	2 7	2 6	2 6	2 6	2 10	2 8
Silk, lb.	21 7	21 5	21 0	16 9	15 4	19 2	20 0	17 8	17 5	17 0	18 9
Sugar, raw, cwt.	25 1	26 2	24 0	22 5	21 2	21 0	25 9	21 6	20 3	21 9	22 9
,, refined, cwt.	36 2	36 4	33 10	30 9	30 4	29 6	33 9	29 3	27 4	29 3	31 8
Sulphur, cwt.	6 6	6 9	6 7	6 9	6 10	6 5	5 10	5 6	5 0	5 5	6 2
Tallow, ,,	42 0	42 10	41 3	40 4	42 4	42 9	42 0	39 4	35 10	35 2	40 5
Tea, ,,	152 0	155 0	154 0	157 0	155 0	152 0	148 0	142 0	135 0	125 0	147 6
Tobacco, ,,	75 0	77 0	72 0	77 0	80 0	77 0	75 0	62 0	67 0	65 0	72 9
Wheat, ,,	11 10	12 5	13 0	12 2	10 7	10 5	12 6	11 0	10 6	11 1	11 6
Wine, gallon	7 9	7 10	7 8	7 6	7 4	7 0	7 4	7 3	7 1	7 5	7 5
Wood, load	56 0	58 0	65 0	65 0	57 0	58 0	56 0	49 0	42 0	50 0	55 7
,, staves	144 0	188 0	199 0	149 0	133 0	133 0	133 0	98 0	97 0	91 0	136 6
Wool, cwt.	124 0	135 0	137 0	137 0	144 0	134 0	133 0	129 0	125 0	126 0	132 6
Yeast, ,,	50 0	50 0	51 0	52 0	49 0	49 0	49 0	52 0	52 0	52 0	50 6

British imports from 1881 to 1889 :—

	1881		1882		1883		1884		1885		1886		1887		1888		1889		1881–89	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Bacon, cwt.	45	10	53	0	53	0	49	3	40	6	37	9	42	2	44	9	41	6	45	8
Barley, ,,	8	4	7	2	7	0	6	6	5	10	5	9	5	3	5	8	5	8	6	5
Beef, ,,	49	10	51	7	52	10	51	4	49	0	43	8	41	5	42	8	41	2	47	0
Brandy, gallon	9	0	9	0	9	2	9	0	9	0	9	1	9	4	9	2	9	2	9	1
Butter, cwt.	106	0	105	0	101	0	101	0	110	0	105	0	106	0	107	0	106	0	105	0
Cheese, ,,	57	0	56	0	54	0	52	0	44	0	45	0	49	0	47	0	47	0	50	0
Chinchona, lb.	2	6	2	3	2	2	1	6	1	2	1	0	0	10	0	8	0	7	1	5
Cigars, ,,	14	0	14	3	12	5	11	0	12	3	11	0	10	5	9	9	11	5	11	9
Cochineal, ,,	2	1	1	9	1	3	1	0	1	1	1	2	1	1	1	2	1	1	1	4
Cocoa, cwt.	76	0	70	0	74	0	77	0	77	0	73	0	74	0	70	0	68	0	73	4
Coffee, ,,	78	0	76	0	70	0	66	0	64	0	65	0	81	0	75	0	83	0	73	3
Copper ore, cwt.	7	10	9	9	10	4	11	1	7	0	6	10	7	0	8	8	7	8	8	7
Cotton, cwt.	58	0	58	6	58	0	57	0	57	0	50	0	50	0	52	0	53	0	55	0
Eggs (120)	7	4	7	0	7	0	7	0	7	0	6	8	6	10	6	7	6	8	6	11
Fish, cwt.	30	6	33	7	35	6	30	8	26	3	25	9	25	4	24	4	26	0	28	6
Flax, ,,	41	0	39	0	40	0	40	9	41	7	41	6	36	4	34	0	36	0	39	0
Flour, ,,	16	3	16	4	15	2	13	6	12	2	11	2	11	1	11	3	11	8	13	4
Glass, ,,	14	7	15	9	15	8	13	10	13	8	12	6	12	2	12	0	11	6	13	6
Guano, cwt.	9	9	8	8	9	9	9	1	9	8	7	10	8	3	8	0	7	0	8	8
Hams, ,,	49	0	55	6	60	6	59	0	51	0	47	0	52	0	53	0	51	0	53	3
Hemp, ,,	30	0	32	8	33	6	31	3	30	8	28	5	29	3	31	0	35	0	31	6
Hides, ,,	64	0	63	0	64	0	64	0	63	0	59	0	54	0	52	0	50	0	59	0
Hops, ,,	94	0	185	0	168	0	126	0	75	0	58	0	59	0	74	0	72	0	101	0
Indigo, lb.	5	2	5	0	4	4	4	3	4	0	4	0	3	10	3	10	3	6	4	2
Jute, cwt.	16	2	14	6	12	3	15	0	11	4	11	3	11	3	12	5	14	2	13	2
Lard, ,,	51	0	56	0	53	0	44	0	37	0	34	6	35	4	42	0	36	6	43	0
Leather, cwt.	162	0	156	0	164	0	157	0	159	0	158	0	147	0	144	0	141	0	154	0
Linseed, ,,	12	0	10	8	10	3	10	6	10	7	10	2	9	2	9	5	10	0	10	4
Maize, ,,	6	3	7	2	6	6	5	10	5	4	4	10	4	10	5	5	4	9	5	7
Molasses, ,,	9	3	8	9	8	4	7	2	7	0	6	5	6	8	6	4	7	4	7	6
Nitre, ,,	14	8	13	3	11	5	9	8	9	10	10	0	9	7	9	7	9	5	10	10
Oats, ,,	7	4	6	9	6	8	6	6	6	6	6	6	5	10	4	9	5	6	6	1
Oil, olive, gallon	3	2	3	2	3	0	3	3	3	2	3	0	2	10	2	10	2	10	3	0
,, palm, cwt.	29	0	30	6	35	1	33	6	26	10	20	10	19	6	19	10	21	2	26	4
Opium, lb.	15	8	14	8	14	6	13	10	12	10	11	10	13	0	12	5	12	2	13	4
Oranges, bushel	7	8	7	10	7	8	7	2	6	10	6	9	6	5	6	0	5	11	6	10
Paper, cwt.	36	0	35	3	33	0	30	6	30	0	31	2	30	3	28	0	27	0	31	6
Pepper, ,,	51	0	53	0	60	0	66	0	68	0	68	0	76	0	72	0	65	0	64	3
Petroleum, gallon	0	8	0	7	0	7	0	8	0	7	0	7	0	7	0	7	0	6	0	7
Pork, cwt.	35	0	40	0	40	5	36	9	36	0	34	0	36	0	37	7	35	1	37	0
Potatoes, cwt.	5	5	6	8	6	2	6	9	6	4	5	10	7	0	6	9	8	0	6	7
Rags, ,,	14	10	14	4	14	0	13	6	13	2	12	6	12	2	11	4	10	0	13	0
Raisins, ,,	36	6	37	6	36	0	34	2	32	8	33	0	31	4	30	4	31	9	33	9
Rice, ,,	8	8	8	0	8	3	8	2	7	10	7	6	7	6	7	6	8	2	8	0
Rum, gallon	2	0	2	0	1	10	1	9	1	7	1	6	1	7	1	8	1	8	1	9
Saltpetre, cwt.	22	9	21	9	20	0	18	4	16	10	17	9	17	3	17	0	17	6	18	7
Seeds, clover, cwt.	44	3	42	8	47	6	45	3	46	8	40	10	41	2	41	3	41	0	43	2
Sheep, each,	47	0	46	0	45	0	45	0	43	0	39	0	34	0	36	0	35	0	41	0
Sheepskin, each	2	6	2	8	2	6	2	7	2	5	2	1	2	2	2	2	2	2	2	5
Silk, lb.	17	0	16	6	16	3	14	9	14	0	13	9	13	8	12	3	14	0	14	8
Sugar raw, cwt.	21	9	21	1	20	1	15	6	14	0	13	0	12	2	13	6	15	6	16	4
,, refined, cwt.	29	0	28	8	27	3	20	10	18	2	16	8	15	8	17	6	19	8	21	6
Sulphur, ,,	6	0	6	2	5	6	5	2	5	0	5	0	4	9	4	6	4	4	5	1
Tallow, ,,	35	3	40	4	40	6	37	9	31	4	25	8	24	0	25	0	26	6	31	10
Tea, ,,	120	0	118	0	117	0	110	0	112	0	110	0	98	0	102	0	101	0	110	0
Tobacco, ,,	63	1	72	0	72	0	74	0	74	0	68	0	68	0	70	0	65	0	69	6
Wheat, ,,	11	0	10	8	9	10	8	5	7	10	7	6	7	8	7	8	7	8	8	8
Wine, gallon	7	0	7	0	7	0	7	0	7	0	7	0	7	1	7	4	7	5	7	1
Wood, load,	51	0	52	0	52	0	48	0	48	0	43	0	38	0	41	0	47	0	46	6
,, staves, load	99	0	104	0	91	0	82	0	86	0	81	0	82	0	82	0	82	0	88	0
Wool, cwt.	129	0	114	0	113	0	113	0	93	0	85	0	94	0	91	0	91	0	102	6
Yeast, ,,	52	0	53	0	56	0	55	0	56	0	55	0	54	0	55	0	55	0	54	6

Prices of British exports :—

	1854–60		1865		1866		1867		1868		1869		1870		1865–70	
	£	s.	£	s.	£	s.	£	s.	£	s.	£	s.	£	s.	£	s.
Alkali, ton	9	14	8	15	10	15	10	5	8	11	7	17	7	14	9	0
Bags, gross	6	12	7	7	6	6	5	8	4	16	4	16	4	9	5	11
Beer, barrel	3	9	3	13	3	13	3	14	3	15	3	16	3	12	3	14
Books, load	14	0	12	19	12	8	12	5	11	3	11	8	11	13	12	0
Boots, dozen pair	3	0	3	7	3	8	3	10	3	14	3	1	3	2	3	7
Brass, cwt.	6	0	5	5	5	9	4	13	4	17	4	14	4	6	4	18

	1854-60	1865	1866	1867	1868	1869	1870	1865-70
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
Butter, cwt.	5 0	5 4	5 8	4 17	5 2	5 6	5 10	5 5
Candles, ,,	5 16	4 18	5 3	5 8	5 8	5 6	4 18	5 4
Carpet, 12 yards	1 11	1 16	1 18	2 0	1 16	1 16	1 16	1 17
Cement, ton	2 17	2 11	2 12	2 10	2 9	2 9	2 9	2 10
Cheese, cwt.	4 1	4 2	4 7	4 6	4 2	4 6	4 8	4 5
Cloth, 12 yards	1 7	1 18	1 19	2 1	1 17	1 16	1 15	1 17
Coal, ton	0 19	0 10	0 10	0 10	0 10	0 10	0 10	0 10
Copper, cwt.	5 10	4 9	4 10	4 1	4 1	4 0	3 15	4 3
Cordage, ,,	2 15	2 9	2 15	2 17	2 17	2 17	2 16	2 15
Cottons, plain, 100 yards	1 5	2 2	2 2	1 14	1 11	1 12	1 10	1 15
,, printed, ,,	1 14	2 8	2 9	2 4	2 0	2 1	2 0	2 4
Firearms, each	1 5	1 9	1 7	1 10	1 13	1 4	1 15	1 10
Flannel, 12 yards	0 16	1 0	0 19	0 19	0 18	0 18	0 17	0 18
Glass, flint, cwt.	3 4	3 1	2 15	2 14	2 12	2 13	2 14	2 15
,, bottles, ton	10 16	10 0	10 3	10 0	9 19	9 18	10 0	10 0
Gunpowder, cwt.	3 10	3 1	3 0	2 18	2 13	2 14	2 15	2 17
Hats, dozen	1 18	1 19	1 17	1 18	1 14	1 11	1 11	1 15
Herrings, barrel	1 5	1 8	1 8	1 8	1 8	1 9	1 5	1 8
Horses, each	58 0	42 0	41 0	43 0	49 0	61 0	35 0	45 0
Iron pig, ton	3 7	2 18	3 2	2 18	2 17	2 18	2 19	2 19
,, rails, ,,	8 6	8 4	8 8	8 7	8 0	8 3	8 5	8 4
,, hoops, ton	13 2	10 5	10 0	9 12	8 18	9 0	9 6	9 10
,, wire, ,,	20 9	19 12	20 11	19 14	19 7	18 16	18 15	19 9
Jute, 100 yards	2 4	2 0	1 17	1 14	1 13	1 10	1 10	1 14
Lead, ton	24 0	21 1	21 15	21 1	20 3	20 3	19 16	20 14
Leather, cwt.	8 16	9 12	11 5	9 11	9 0	8 8	8 4	9 7
Linens, plain, 100 yards	2 18	3 7	3 9	3 5	3 3	2 19	3 0	3 5
,, printed, ,,	3 3	3 17	4 2	4 1	3 18	3 5	3 8	3 18
Oil-seed, ton	30 5	30 5	34 16	34 9	31 5	28 0	28 12	31 5
Paper, cwt.	4 8	3 4	3 2	2 18	2 19	2 16	3 0	3 0
Sailcloth, 100 yards	5 0	5 6	5 6	5 7	5 12	5 18	5 5	5 8
Salt, ton	0 11	0 9	0 12	0 12	0 12	0 10	0 10	0 11
Soap, cwt.	1 6	1 6	1 7	1 6	1 6	1 8	1 8	1 7
Silks, 12 yards	1 18	2 6	2 8	2 9	2 7	2 7	2 6	2 7
Spirits, hhd.	11 16	7 12	8 3	8 0	7 16	8 0	8 0	7 18
Steel, ton	35 0	32 15	32 14	32 12	32 4	31 0	31 12	32 3
Sugar, cwt.	2 13	1 10	1 10	1 11	1 15	1 16	1 12	1 12
Tin, ,,	6 0	4 16	4 9	4 11	4 14	5 16	6 5	5 2
Wool, ,,	7 8	11 4	10 4	9 15	8 12	8 6	7 3	9 4
Worsted stuffs, 12 yards	0 10	0 14	0 14	0 14	0 14	0 15	0 14	0 14
Yarn, cotton, cwt.	5 12	11 4	11 1	9 16	9 8	9 6	8 17	9 19
,, linen, ,,	6 1	7 12	7 18	8 0	7 17	7 10	6 14	7 12
,, woollen, ,,	14 0	18 12	19 1	17 4	16 5	16 13	15 12	17 5
Zinc, ton	28 0	21 4	24 0	22 0	21 16	20 10	19 5	21 9

British exports from 1871 to 1880 ;—

	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1871-80
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
Alkali, ton	8 7	11 3	12 6	10 9	9 3	8 3	7 15	7 0	6 7	6 19	8 15
Bags, gross	5 0	5 6	5 3	4 9	4 2	3 12	3 14	3 12	3 8	3 9	4 4
Beer, barrel	3 17	4 0	4 3	4 8	4 3	3 19	4 3	4 6	4 5	4 5	4 3
Books, cwt.	11 11	10 17	10 18	10 15	10 14	10 15	10 13	10 7	10 0	10 0	10 11
Boots, dozen pair	3 0	2 18	3 5	3 7	3 6	3 3	3 1	3 1	3 1	3 1	3 2
Brass, cwt.	4 10	5 9	6 0	6 6	5 9	5 4	4 16	4 3	3 18	4 5	5 0
Butter, ,,	5 16	5 12	5 18	6 2	6 2	6 5	6 13	6 12	6 8	6 8	6 4
Candles, ,,	3 13	3 14	3 15	3 17	3 15	3 12	3 11	3 11	3 3	3 3	3 11
Carpet, 12 yards	1 16	1 19	1 19	1 19	1 17	1 15	1 12	1 10	1 9	1 9	1 14
Cement, ton	2 9	2 9	3 0	3 0	2 12	2 11	2 12	2 11	2 10	2 10	2 12
Cheese, cwt.	4 6	4 5	4 6	4 7	4 3	4 1	4 3	4 0	3 17	4 5	4 3
Cloth, 12 yards	1 18	2 1	2 1	2 0	1 19	1 18	1 16	1 15	1 12	1 12	1 17
Coal, ton	0 10	0 16	1 1	0 17	0 13	0 11	0 10	0 9	0 9	0 9	0 12
Copper ingot, cwt.	3 16	4 16	4 14	4 8	4 8	4 3	3 16	3 10	3 3	3 8	4 0
Cordage, cwt.	2 16	2 18	3 0	2 16	2 15	2 15	2 15	2 13	2 6	2 10	2 14
Cottons, 100 yards	1 8	1 9	1 9	1 7	1 6	1 4	1 4	1 3	1 2	1 3	1 5
,, printed, 100 yards	1 19	2 1	2 0	1 19	2 0	1 17	1 16	1 15	1 13	1 11	1 17
Firearms, each	1 19	1 4	1 9	1 12	2 1	1 7	1 1	1 1	0 19	1 3	1 7
Flannel, 12 yards	0 18	0 18	0 18	1 0	0 18	0 18	0 18	0 17	0 17	0 16	0 18
Flour, ton	16 10	17 10	19 0	18 3	14 18	14 19	17 9	15 5	14 1	13 17	16 3
Glass, flint, cwt.	2 8	2 13	2 18	3 0	3 0	2 19	2 16	2 12	2 12	2 2	2 14
,, bottles, ton	9 14	9 16	10 4	10 8	11 2	11 3	11 0	10 14	10 4	10 2	10 9
Gunpowder, cwt.	2 14	2 15	2 19	3 2	2 19	2 16	2 14	2 14	2 17	2 16	2 17
Hats, dozen	1 10	1 9	1 9	1 10	1 8	1 6	1 5	1 4	1 3	1 2	1 6
Herrings, barrel	1 7	1 8	1 8	1 8	1 8	1 8	1 14	1 13	1 8	1 7	1 9
Horses, each	38 0	53 0	63 0	67 0	77 0	81 0	74 0	69 0	59 0	61 0	64 0
Iron, bar, ton	8 7	11 12	13 2	11 16	9 18	8 11	7 15	7 3	6 13	7 16	9 5

	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1871–80
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
Iron, cast, ton	14 15	17 14	19 8	19 19	18 2	16 11	14 7	14 0	13 3	13 15	16 4
,, galvan., ton	20 12	26 2	26 19	25 11	24 9	22 16	20 7	18 18	16 16	18 .7	22 2
,, hoop, ,,	9 8	13 0	14 12	13 6	11 3	9 12	8 11	7 17	7 4	8 9	10 7
,, old, ,,	4 16	6 2	6 12	5 14	4 15	4 5	4 6	3 17	3 8	4 16	4 17
,, plates, ,,	11 16	15 11	18 0	17 8	15 4	14 6	12 16	11 16	9 7	10 13	13 14
,, pig, ,,	3 1	5 1	6 5	4 15	3 13	3 2	2 17	2 14	2 12	3 4	3 14
,, rail, ,,	8 5	10 16	13 5	12 6	10 0	8 18	7 15	7 10	6 4	7 6	9 5
,, wire, ,,	17 0	20 1	23 10	21 0	18 10	16 8	14 14	14 9	13 8	13 18	17 6
Jute, 100 yards	1 13	1 15	1 13	1 10	1 8	1 6	1 7	1 6	1 4	1 5	1 9
Lead, ton	19 5	20 9	23 15	22 12	23 3	22 11	21 10	18 15	15 8	17 8	20 10
Leather, cwt.	8 3	8 16	9 0	8 18	8 18	8 2	8 2	7 6	6 17	7 17	8 4
Linens, 100 yards	3 2	3 2	3 3	3 5	3 3	3 0	2 18	3 0	2 19	3 2	3 1
,, printed, 100 yards	3 7	3 3	3 3	3 4	3 8	3 8	3 5	3 1	3 1	3 0	3 4
Oil-seed, ton	28 10	30 5	28 0	25 13	24 0	23 10	25 15	24 15	24 4	24 10	25 18
Paper, cwt.	2 19	2 18	3 1	3 2	2 19	3 0	2 16	2 13	2 9	2 7	2 17
Sailcloth, 100 yards	5 8	5 19	5 16	6 0	6 0	6 0	5 14	5 8	4 18	5 3	5 13
Salt, ton .	0 10	0 14	0 19	0 16	0 15	0 12	0 11	0 12	0 12	0 11	0 13
Silk, 12 yards	2 0	1 18	2 2	2 0	1 17	1 19	1 18	2 0	2 1	1 19	1 19
Soap, cwt.	1 7	1 6	1 6	1 5	1 5	1 5	1 4	1 4	1 2	1 2	1 5
Spirits, hhd.	7 18	7 18	7 18	7 18	15 15	15 6	15 8	17 3	16 16	16 12	12 17
Steel bars, ton	30 12	32 18	37 2	38 6	36 6	34 3	33 11	31 19	27 18	28 5	33 2
Sugar, cwt.	1 12	1 12	1 10	1 7	1 4	1 3	1 8	1 4	1 2	1 3	1 7
Thread, 12 lbs.	...	...	...	2 2	2 4	2 4	1 19	1 18	1 18	1 18	2 0
Tin, cwt.	6 14	7 9	6 17	5 5	4 12	3 19	3 14	3 6	3 12	4 10	5 0
Tinplates, ton	24 5	32 5	32 15	30 4	26 13	21 16	19 16	17 12	17 16	20 10	24 7
Wheat, ,,	13 2	12 16	13 9	13 7	11 5	10 11	13 0	10 14	9 17	10 6	11 17
Wool, cwt.	7 14	9 6	9 17	10 4	9 16	8 12	8 5	9 6	6 13	7 12	8 15
Yarn, cotton, cwt.	8 14	8 16	8 6	7 8	6 16	6 3	5 19	5 18	5 15	6 3	7 0
,, jute, ,,	2 2	2 6	1 17	1 15	1 12	1 10	1 13	1 13	1 13	1 11	1 15
,, linen, ,,	6 15	8 12	8 13	7 1	7 8	7 5	7 9	7 6	6 18	6 12	7 8
,, woollen, ,,	15 10	17 5	17 7	17 13	17 17	15 17	14 16	14 0	12 10	14 0	15 13
Zinc, ton	17 18	20 3	24 18	24 18	23 16	23 0	20 14	18 0	15 3	16 15	20 10

British exports from 1881 to 1889 :—

	1881	1882	1883	1884	1885	1886	1887	1888	1889	1881–89
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
Alkali, ton	6 3	6 3	6 2	6 7	5 18	5 15	5 13	5 3	5 5	5 16
Bags, gross	3 6	3 5	3 2	2 18	2 12	2 6	2 8	2 13	3 0	2 17
Beer, barrel	4 2	4 5	4 0	3 16	3 15	3 16	3 16	3 15		3 18
Books, cwt.	10 0	9 12	9 11	9 9	9 13	9 2	8 16	8 14	8 .7	9 5
Boots, dozen pair	2 17	2 19	3 0	3 0	2 18	2 18	2 18	2 14	2 14	2 18
Brass, cwt.	4 3	4 9	4 9	4 5	4 0	3 15	3 15	4 18	4 10	4 5
Butter, ,,	6 4	6 19	7 0	7 0	6 2	5 13	5 13	5 14	5 15	6 5
Candles, ,,	3 1	3 1	3 2	3 2	2 17	2 10	2 3	2 1	2 1	2 13
Carpet, 12 yards	1 9	1 8	1 8	1 6	1 6	1 5	1 4	1 5	1 5	1 6
Cement, ton	2 7	2 7	2 6	2 5	2 4	2 0	1 19	1 18	1 19	2 3
Cheese, cwt.	4 3	4 1	4 4	4 4	4 2	3 19	3 19	3 19	3 17	4 1
Cloth, 12 yards	1 13	1 14	1 18	2 1	2 0	1 19	2 0	1 19	2 1	1 18
Coal, ton	0 9	0 9	0 9	0 9	0 9	0 8	0 8	0 8	0 10	0 9
Copper, ingot, cwt.	3 6	3 11	3 7	2 19	2 8	2 4	2 5	3 18	2 7	2 18
Cordage, cwt.	2 11	2 12	2 11	2 5	2 3	2 1	2 6	2 6	2 11	2 7
Cottons, ,,	1 2	1 3	1 2	1 0	1 0	0 18	0 19	0 19	0 19	1 0
,, printed, 100 yards	1 11	1 11	1 10	1 10	1 9	1 6	1 6	1 5	1 5	1 8
Firearms, each	1 5	1 8	1 7	1 6	1 10	1 17	1 15	1 12	1 8	1 10
Flannel, 12 yards	0 15	0 15	0 15	0 14	0 13	0 12	0 12	0 11	0 12	0 13
Flour, ton	14 1	14 15	13 10	12 5	10 8	10 5	10 8	10 5	10 16	11 17
Glass, flint, cwt.	2 2	2 7	2 5	2 7	2 3	2 8	2 9	2 4	2 5	2 6
,, bottles, ton	9 18	9 11	9 5	9 6	9 8	9 8	9 9	9 8	9 9	9 9
Gunpowder, cwt.	2 18	2 17	2 15	2 15	2 16	2 16	3 0	3 0	2 18	2 17
Hats, dozen	1 2	1 2	1 1	1 1	1 1	0 19	0 19	1 0	1 0	1 0
Herrings, barrel	1 15	1 10	1 10	1 10	1 5	1 5	1 4	1 1	1 3	1 6
Horses,	62 0	63 0	56 0	58 0	60 0	56 0	58 0	66 0	69 0	61 0
Iron, bar, ton	6 17	7 7	7 1	6 11	6 3	5 13	5 10	5 11	6 6	6 6
,, cast, ,,	13 12	13 17	13 0	12 3	11 11	10 18	11 3	11 8	11 14	12 3
,, galvan., ,,	16 11	16 7	15 4	14 6	13 8	12 2	11 15	12 15	12 13	13 18
,, hoops, ,,	7 10	7 18	7 15	7 5	6 14	6 2	6 1	6 1	6 15	6 18
,, old, ,,	3 19	3 17	3 9	3 6	3 1	2 14	2 17	2 15	2 19	3 4
,, plates, ,,	9 15	10 5	10 2	9 8	8 3	10 6	9 1	8 13	9 4	9 8
,, pig, ,,	2 15	2 16	2 12	2 6	2 4	2 3	2 7	2 3	2 10	2 8
,, rail, ,,	6 18	6 16	6 4	5 14	5 9	5 0	4 11	4 12	4 18	5 10
,, wire, ,,	13 6	15 7	14 16	13 2	12 10	13 17	13 12	13 9	14 18	13 18
Jute, 100 yards	1 3	1 3	1 2	1 0	0 18	0 17	0 17	0 18	1 1	1 0
Lead, ton	15 14	15 9	14 1	12 12	12 5	13 17	13 15	15 0	14 11	14 3
Leather, cwt.	8 1	8 15	9 7	9 9	9 5	8 19	8 16	8 15	9 4	8 19

	1881	1882	1883	1884	1885	1886	1887	1888	1889	1881-89
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
Linens, 100 yards . . .	2 18	2 17	2 18	2 15	2 13	2 10	2 11	2 6	2 6	2 12
,, printed, 100 yards . .	2 18	3 8	3 5	2 14	2 17	2 12	2 11	2 9	2 13	2 17
Oil-seed, ton	24 0	22 10	20 4	20 0	20 4	18 7	21 0	20 9	21 14	20 19
Paper, cwt.	2 5	2 5	2 3	2 1	1 19	1 17	1 15	1 13	1 14	1 19
Sailcloth, 100 yards . . .	5 0	5 4	4 17	4 12	4 11	4 12	4 12	4 8	4 12	4 15
Salt, ton	0 12	0 12	0 13	0 13	0 15	0 15	0 13	0 11	0 16	0 13
Silks, 12 yards . . .	1 19	2 0	1 19	1 19	2 5	2 8	2 10	2 6	1 17	2 2
Soap, cwt.	1 2	1 2	1 3	1 3	1 4	1 1	1 0	0 19	1 0	1 2
Spirits, hhd. . . .	17 14	18 11	18 14	19 3	19 12	21 3	21 3	21 10	22 0	19 19
Steel bars, ton . . .	27 10	27 5	25 0	23 5	22 0	18 9	18 1	16 5	15 7	21 10
Sugar, cwt.	1 4	1 3	1 1	0 18	0 15	0 14	0 13	0 15	0 16	0 18
Thread, 12 lbs. . . .	1 16	1 17	1 16	1 19	2 0	1 18	1 16	1 15	1 17	1 17
Tin, cwt.	4 16	5 5	4 19	4 5	4 9	5 0	5 10	5 16	4 16	5 0
Tinplates, ton . . .	17 2	17 10	17 9	16 9	14 17	14 3	13 11	14 3	14 0	15 9
Wheat, ,, . . .	10 4	10 1	10 6	8 11	8 6	7 15	8 6	8 15	7 17	8 18
Wool, cwt.	7 3	7 3	5 18	5 1	4 9	4 13	5 5	4 16	5 0	5 10
Yarn, cotton, cwt. . . .	5 16	6 1	5 14	5 14	5 8	5 1	5 1	5 2	5 3	5 8
,, jute, ,, . . .	1 10	1 9	1 8	1 6	1 0	1 0	1 2	1 3	1 7	1 5
,, linen, ,, . . .	6 10	6 8	6 13	6 10	6 13	6 12	6 8	6 15	6 15	6 11
,, woollen, ,, . . .	12 2	11 18	10 19	11 2	11 6	10 16	11 2	10 12	10 14	11 4
Zinc, ton	15 3	14 13	13 18	13 12	13 6	13 11	13 1	15 14	15 13	14 7

The prices of English grain per ton were :—

Year	Wheat	Barley	Oats	Year	Wheat	Barley	Oats
	£ s.	£ s.	£ s.		£ s.	£ s.	£ s.
1786	10 0	6 5	4 13	1839	17 14	9 18	6 10
1787	10 12	5 17	4 6	1840	16 12	9 2	6 9
1788	11 12	4 0	4 0	1841	16 2	8 5	5 12
1789	13 4	5 18	4 3	1842	14 6	6 18	4 16
1790	13 14	6 11	4 18	1843	12 10	7 8	4 12
1791	12 4	6 10	4 10	1844	12 16	8 9	5 3
1792	10 15	6 18	4 2	1845	12 15	7 19	5 13
1793	12 6	7 15	5 3	1846	13 14	8 4	5 19
1794	13 2	7 19	5 6	1847	17 9	11 1	7 4
1795	18 16	9 7	6 2	1848	12 13	7 18	5 3
1796	19 14	8 17	5 10	1849	11 1	7 0	4 8
1797	13 9	6 16	4 1	1850	10 1	5 18	4 2
1798	12 19	7 5	4 18	1851	9 13	6 4	4 13
1799	17 5	9 1	6 18	1852	10 4	7 3	4 15
1800	28 10	14 19	9 17	1853	13 1	8 6	5 5
1801	29 18	17 3	9 5	1854	18 2	9 0	7 0
1802	17 10	8 7	5 2	1855	18 14	8 14	6 17
1803	14 14	6 7	5 8	1856	17 6	10 5	6 6
1804	15 11	7 15	6 1	1857	14 2	10 10	6 5
1805	22 9	11 3	7 2	1858	11 1	8 14	6 3
1806	19 15	9 14	6 18	1859	11 0	8 8	5 16
1807	18 17	9 17	7 1	1860	13 6	9 3	6 2
1808	20 7	10 17	8 7	1861	13 17	9 0	5 19
1809	24 7	11 15	7 18	1862	13 17	8 15	5 13
1810	26 12	12 0	7 3	1863	11 4	8 9	5 6
1811	23 16	10 11	6 18	1864	10 1	7 10	5 0
1812	31 13	16 14	11 3	1865	10 5	7 9	5 10
1813	18 12	9 7	6 9	1866	12 10	9 7	6 3
1814	18 12	9 7	6 9	1867	16 2	10 0	6 10
1816	19 13	8 10	6 16	1868	16 0	10 15	7 0
1817	24 5	12 7	8 2	1869	12 1	9 17	6 10
1818	21 11	13 5	8 2	1870	11 15	8 13	5 15
1819	18 13	11 9	7 1	1871	14 4	9 1	6 6
1820	16 19	10 6	6 1	1872	14 5	9 6	5 16
1821	14 0	6 10	7 8	1873	14 14	10 2	6 12
1822	11 3	5 10	7 0	1874	14 9	11 5	7 5
1823	13 7	9 3	5 15	1875	11 5	9 12	7 4
1824	16 0	9 2	6 5	1876	11 11	8 16	6 11
1825	17 3	10 0	6 9	1877	14 4	9 19	6 10
1826	14 14	8 12	6 14	1878	11 12	10 1	6 2
1827	14 13	9 8	7 1	1879	11 0	8 10	5 9
1828	15 2	8 5	5 10	1880	11 2	8 5	5 15
1829	16 11	8 3	5 14	1881	11 7	8 0	5 9
1830	16 1	8 3	6 2	1882	11 5	7 16	5 10
1831	16 12	9 10	6 7	1883	10 8	8 0	5 7
1832	14 14	8 5	5 2	1884	8 19	7 14	5 1
1833	13 5	6 18	4 12	1885	8 5	7 10	5 3
1834	11 11	7 5	5 5	1886	7 15	6 13	4 15
1835	9 17	7 10	5 10	1887	8 3	7 4	4 2
1836	12 3	8 5	5 15	1888	9 0	4 14	4 14
1837	14 0	7 12	5 15	1889	7 14	4 17	4 17
1838	16 3	7 19	5 12				

The preceding table gives the following averages :—

Years	Wheat	Barley	Oats
	£ s.	£ s.	£ s.
1786-90 . . .	11 16	5 17	4 8
1791-1800 . . .	15 18	8 11	5 13
1801-10 . . .	21 0	10 10	7 0
1811-20 . . .	21 18	11 7	7 12
1821-30 . . .	14 18	8 6	6 8
1831-40 . . .	14 5	8 4	5 14
1841-50 . . .	13 7	7 18	5 5
1851-60 . . .	13 13	8 13	5 18
1861-70 . . .	12 15	9 0	5 18
1871-80 . . .	12 16	9 10	6 7
1881-89 . . .	9 5	6 17	5 0

The prices of meat at Smithfield Market, London, averaged as follows, per ton, from 1835 to date :—

Year.	£ s.	Year.	£ s.	Year.	£ s.
1835 . .	49 10	1853 . .	56 0	1871 . .	69 10
1836 . .	53 7	1854 . .	54 18	1872 . .	67 5
1837 . .	53 7	1855 . .	54 18	1873 . .	75 3
1838 . .	54 10	1856 . .	58 5	1874 . .	76 5
1839 . .	52 10	1857 . .	56 0	1875 . .	76 5
1840 . .	54 10	1858 . .	58 5	1876 . .	74 0
1841 . .	56 10	1859 . .	58 5	1877 . .	72 18
1842 . .	55 10	1860 . .	60 10	1878 . .	72 18
1843 . .	48 8	1861 . .	58 5	1879 . .	71 15
1844 . .	48 8	1862 . .	58 5	1880-81 . .	69 10
1845 . .	51 10	1863 . .	57 3	1882 . .	75 3
1846 . .	48 8	1864 . .	65 0	1883 . .	71 15
1847 . .	53 9	1865 . .	60 10	1884 . .	70 12
1848 . .	57 10	1866 . .	63 18	1885 . .	61 12
1849 . .	48 8	1867 . .	58 5	1886 . .	59 7
1850 . .	47 7	1868 . .	62 15	1887 . .	58 5
1851 . .	51 10	1869 . .	67 5	1888 . .	59 7
1852 . .	50 7	1870 . .	67 5	1889 . .	61 0

The prices at Christmas, per stone of 8 lbs. beef, averaged thus :—

Years	Pence	Years	Pence	Years	Pence
1841-42 . .	50	1857-58 . .	49	1873-74 . .	70
1843-44 . .	50	1859-60 . .	53	1875-76 . .	66
1845-46 . .	54	1861-62 . .	50	1877-78 . .	63
1847-48 . .	48	1863-64 . .	54	1879-80 . .	61
1849-50 . .	44	1865-66 . .	54	1881-82 . .	64
1851-52 . .	40	1867-68 . .	57	1883-84 . .	61
1853-54 . .	51	1869-70 . .	57	1885-86 . .	52
1855-56 . .	50	1871-72 . .	60	1887-89 . .	53

Tooke and Newmarch give the prices of hay and straw per ton in twenty-three years, thus :—

Year	Hay	Straw	Year	Hay	Straw
	£ s.	£ s.		£ s.	£ s.
1834 . . .	5 0	1 13	1846 . . .	4 2	1 13
1835 . . .	4 19	1 18	1847 . . .	3 14	1 15
1836 . . .	4 6	1 19	1848 . . .	3 17	1 10
1837 . . .	5 2	2 4	1849 . . .	3 16	1 11
1838 . . .	5 7	2 0	1850 . . .	3 13	1 8
1839 . . .	5 0	2 1	1851 . . .	3 18	1 9
1840 . . .	5 0	2 0	1852 . . .	3 15	1 14
1841 . . .	4 17	2 2	1853 . . .	5 3	1 16
1842 . . .	4 11	2 1	1854 . . .	4 19	1 18
1843 . . .	4 6	2 5	1855 . . .	5 6	1 8
1844 . . .	4 12	2 1	1856 . . .	5 13	1 10
1845 . . .	5 12	2 1	Average 11 years.	4 7	1 14
Average 12 years.	4 18	2 0			

The prices of raw cotton, yarn, and calico from 1802 to 1888 averaged as follows :—

Period	Cotton, Pence per lb.	Yarn, Pence per lb.	Calico, Pence per lb.	Ratio of Price		
				Cotton	Yarn	Calico
1802–10 .	22.2	39	20.5	100	100	100
1811–20 .	21.3	33	16.8	96	85	82
1821–30 .	8.3	17	8.2	37	43	40
1831–40 .	7.9	14	5.2	35	35	26
1841–50 .	5.3	13	3.4	24	33	17
1851–60 .	5.9	11	2.9	27	28	14
1861–70 .	12.8	20	4.2	57	51	21
1871–80 .	7.1	15	3.0	32	38	15
1881 . .	6.3	12	2.7	28	30	13
1888 . .	5.5	11	2.3	25	28	11

The medium prices in various years are taken from the *Economist* as follows :—

	1845–50	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1881–90
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
Beef, ton	44 0	61 0	65 0	63 0	65 0	65 0	61 0	51 10	49 0	55 0	55 0	58 0	59 0
Butter, cwt.	4 2	5 17	5 19	6 7	5 18	5 12	5 0	4 5	4 10	4 8	5 0	...	5 5
Calico, 100 yards	1 4	1 1	1 4	1 2	1 0	1 0	1 0	1 0	1 0	1 0	1 1	1 1	1 1
Coal, ton	...	0 9	0 9	0 9	0 9	0 10	0 10	0 8	0 8	0 8	0 10	0 12	0 9
Coffee, cwt.	2 9	3 14	3 0	2 9	2 0	2 12	2 6	2 2	3 15	3 14	4 3	4 11	3 2
Copper, ton	88 0	71 5	66 5	75 10	70 10	62 5	53 0	44 0	43 0	78 0	62 0	56 5	61 0
Cotton, cwt.	2 9	2 10	3 3	3 2	2 14	2 16	2 16	2 6	2 12	2 14	2 16	2 12	2 15
Flax, ton	44 0	33 0	29 0	30 0	27 10	27 0	30 0	29 10	30 5	27 0	26 0	23 0	28 0
Hemp, ton	32 0	25 10	23 15	26 5	23 10	29 10	29 10	28 5	28 5	20 0	24 0	26 0	26 0
Indigo, cwt.	21 0	43 16	42 0	39 4	37 16	33 10	33 10	33 10	28 0	27 0	26 0	25 0	32 10
Iron bar, ton	8 0	7 17	5 15	6 15	6 0	5 10	6 0	5 5	5 0	5 7	7 0	8 15	6 3
Lead, ton	17 10	19 12	15 5	15 7	14 10	12 5	11 5	12 12	12 10	14 10	13 7	14 6	13 12
Leather, cwt.	8 8	11 14	11 14	11 14	11 14	11 14	11 12	11 14	11 10	11 4	11 3	11 3	11 12
Olive oil, tun	44 0	46 0	42 0	40 0	36 10	40 10	40 15	40 0	36 15	36 12	34 10	37 5	38 10
Oil, palm	32 0	36 15	32 0	32 5	37 10	43 10	32 0	29 0	23 0	21 0	29 0	25 15	30 10
Petroleum, 40 gallons	...	1 2	1 12	0 19	1 3	1 4	1 3	1 2	1 0	1 0	1 0	1 1	1 2
Pork, ton	50 0	58 0	73 10	58 0	58 0	54 0	44 0	38 0	42 0	38 0	45 10	46 0	49 14
Potatoes, ton	...	7 5	4 5	4 5	6 0	4 0	3 10	4 10	4 10	4 10	4 15	3 0	4 10
Rum, 10 gallons	1 10	1 14	1 7	1 18	1 10	1 8	1 6	1 8	1 7	1 3	1 4	1 7	1 9
Saltpetre, cwt.	1 7	1 7	1 8	1 9	1 6	1 4	1 3	1 2	1 1	1 1	1 2	1 2	1 4
Silk, lb.	0 16	0 16	0 16	0 14	0 13	0 10	0 11	0 15	0 13	0 13	0 13		
Steel rails, ton	...	8 15	6 5	6 15	5 10	4 10	4 15	4 15	4 5	4 0	5 10	7 0	5 6
Sugar, cwt.	1 9	1 2	1 0	1 1	0 18	0 18	0 11	0 14	0 11	0 13	0 17	0 12	0 16
Tallow, ,,	2 4	2 5	1 19	2 3	2 9	2 12	2 2	2 2	1 15	1 11	1 19	1 13	2 0
Tea, ,,	4 6	6 1	4 4	3 14	3 5	3 18	3 6	3 18	3 5	3 14	3 1	2 13	3 10
Timber, load	3 16	3 17	3 7	3 10	3 10	3 10	3 0	2 15	2 17	2 15	2 18	2 12	3 3
Tin, ton	85 10	94 0	94 0	114 10	98 0	88 10	77 5	97 0	105 0	120 0	99 0	103 0	99 10
Tobacco, cwt.	2 1	3 14	3 7	4 18	5 2	4 9	4 9	4 4	4 3	4 18	4 5	4 4	4 8
Wheat, ton	13 5	11 15	10 17	11 1	10 5	9 18	8 0	7 10	8 15	7 15	7 8	7 9	8 18
Wool, cwt.	6 1	6 15	7 4	6 10	5 12	5 17	5 4	4 18	5 7	5 0	5 4	5 12	5 12
Yarn, cotton, cwt.	4 11	5 0	5 0	5 0	4 11	4 10	4 11	3 15	3 18	4 0	4 6	4 4	4 8

FRANCE

Prices of cattle at various dates, according to weight of silver, were in English money of to-day as follows :—

Period	Horse	Ox	Cow	Sheep	Pig
	£ s.	£ s.	£ s.	£ s.	£ s.
1302–20 . . .	...	2 12	...	0 4	0 8
1321–70 . . .	4 15	1 10	...	0 4	0 7
1371–1420 . .	...	...	0 19	0 4	0 10
1421–60 . . .	1 14	2 3	0 11	0 5	0 6
1461–1550 . .	6 12	1 4	0 9	0 2	0 6
1551–80 . . .	6 8	2 2	1 12	0 4	0 8
1581–1600 . .	...	2 12	2 8	0 7	...

Prices of grain and butter per ton were :—

Period	Peas	Oats	Rice	Butter
	£ s.	£ s.	£ s.	£ s.
1341–80 . . .	6 8	...	22 0	...
1381–1440 . .	3 4	1 14	...	16 10
1441–1500 . .	5 4	1 6	20 0	...
1501–50 . . .	3 12	1 12	...	16 0
1551–1600 . .	2 11	2 11	...	40 0

Professor Charles Guyot gives the following scale of prices and wages from the Middle Ages to date, reduced to English money :—

	Land, Acre	Calico, Yard	Cloth, Yard	Workman's Daily Food	Wages, Daily		Wages per Annum	
					Man	Woman	Man	Woman
	£ s.	s. d.	s. d.	d.	d.	d.	£ s.	£ s.
1401–25 .	5 3	...	...	...	...	...	...	...
1520–50 .	7 10	...	...	3	7	4	...	...
1551–75 .	17 0	...	...	3	7	4	...	...
1576–1600	19 10	...	...	4	11	6	...	...
1601–50 .	9 0	0 10	7 6	5	9	7	2 15	1 16
1676–1700	11 0	0 9	5 0	6	11	8	2 16	1 16
1701–26 .	16 8	0 8	5 10	5	9	7	2 16	1 1
1751–75 .	19 0	0 8	5 10	5	8	6	2 8	2 6
1776–1800	38 0	0 11	4 9	4	9	6	3 16	2 4
1826–50 .	...	1 0	8 0	6	14	9	8 0	5 0
1851–71 .	84 0	1 0	6 6	7	20	14	12 0	6 0
1872–85 .	70 0	1 1	6 6	9	24	16	16 0	8 0

The prices of some other things were as follows :—

	Period	£ s. d.		Period	£ s. d.
Apples, 1000 .	1361	0 4 0	Onions, bush.	1372	0 5 0
Bacon, ton . .	1594	60 0 0	Oranges, 1000	1542	0 0 10
Brass, ,, . .	1418	14 10 0	Paper, quire .	1431	0 1 8
Calico, yard .	1312	0 0 8	Partridge .	1563	0 0 6
Candles, lb. .	1499	0 0 3	Peaches, 1000	1435	0 0 6
,, ,, .	1589	0 0 7	Pears, 100 .	1536	0 0 6
Cheese, ton . .	1542	8 0 0	Pepper, lb. .	1450	0 1 0
Chicken . . .	1503	0 0 3	Pheasant . .	1434	0 2 6
Copper, ton . .	1542	32 0 0	Pigeons, pair	1440	0 0 5
Cotton, ,, . .	1320	5 2 0	Rabbit . .	1563	0 0 8
Cowhide, tanned	1542	0 9 6	Salt, bush. .	1375	0 9 6
Eggs, 100 . .	1376	0 1 8	,, ,, .	1589	0 18 0
,, ,, . .	1598	0 2 6	Sheepskin .	1327	0 1 4
Fagots, 1000 .	1560	2 2 0	Shoes, pair .	1564	0 0 10
,, ,,	1600	1 10 0	Slates, 1000 .	1518	0 10 6
Fleece . . .	1341	0 2 0	Steel, ton .	1307	20 0 0
Gunpowder,cwt.	1594	13 8 0	,, ,, .	1542	8 0 0
Hay, ton. . .	1567	1 7 0	Sugar, lb. .	1372	0 4 0
Herrings, 1000 .	1426	1 4 0	,, ,, .	1598	0 2 0
,, ,, .	1595	2 16 0	Thread, lb. .	1322	0 1 2
Horse-shoe . .	1307	0 0 5	Tiles, 1000 .	1341	0 11 0
Iron, ton. . .	1536	8 0 0	,, ,, .	1567	1 12 0
Lead, ,, . .	1312	20 0 0	Wax, lb. .	1434	0 1 1
,, ,, . .	1518	8 0 0	Wine, gallon	1375	0 1 0
,, ,, . .	1542	4 16 0	,, ,, .	1560	0 1 3
Oil, gallon . .	1375	0 5 0	,, Bur- gundy . }	1577	0 2 6
,, ,, . .	1589	0 8 0			

The prices of some articles of food in French cities at various dates were :—

Year	Bread, Ton	Milk, 10 gallons	Eggs, 10 dozen
	£ s. d.	£ s. d.	£ s. d.
1830 . .	16 0 0	0 5 3	0 2 10
1840 . .	9 12 0	0 5 3	0 4 0
1850 . .	9 4 0	0 6 5	0 4 5
1860 . .	10 8 0	0 7 1	0 4 10
1870 . .	12 0 0	0 7 6	0 5 8
1880 . .	14 8 0	0 8 4	0 6 0
1886 . .	12 0 0	0 9 6	0 5 8

Prices of cattle and meat at Paris were :—

Year	Per Head			Per Ton	
	Oxen	Cows	Sheep	Beef	Mutton
	£ s.	£ s.	£ s.	£ s.	£ s.
1820 . . .	9 14	6 16	0 16	44 0	52 0
1830 . . .	14 4	7 12	1 0	49 0	54 0
1840 . . .	15 4	8 4	1 0	52 0	54 0

Prices of rural products in 1888–89 averaged thus :—

	Ton	Bushel		Ton	Bushel
	£ s.	s. d.		s. d.	s. d.
Wheat .	10 10	5 3	Barley .	6 8	3 3
Oats . .	4 16	2 5	Potatoes .	2 2	1 1
Maize .	6 14	3 5	Chestnuts	3 8	1 8
Rye . .	6 12	3 4	Apples .	3 6	1 7

Prices of meat were as follows per ton :—

Year	Beef	Veal	Mutton	Pork	Average
	£ s.	£ s.	£ s.	£ s.	£ s.
1880 . . .	64 10	68 0	71 0	67 0	67 12
1884 . . .	67 0	71 0	76 0	65 0	69 15
1888 . . .	57 0	61 0	66 0	58 0	60 10

The prices of various kinds of grain, according to Broch, in twenty years ending 1883 were as follows per ton :—

	Wheat	Rye	Barley	Oats
	£ s.	£ s.	£ s.	£ s.
1864	10 5	7 8	6 15	4 18
1865	9 11	7 0	6 9	4 17
1866	11 9	7 8	7 9	5 5
1867	15 4	9 16	8 3	6 1
1868	15 8	10 14	8 18	6 9
1869	11 17	7 14	7 2	5 12
1870	11 18	9 6	7 7	5 17
1871	14 12	8 17	8 5	6 8
1872	13 10	7 18	6 8	4 17
1873	14 12	9 4	7 14	5 11
1874	14 7	10 1	8 15	6 12
1875	11 2	7 17	7 2	6 4
1876	12 3	8 3	7 6	6 8
1877	13 13	8 18	7 14	6 1
1878	13 9	8 10	7 17	5 16
1879	12 15	8 17	7 9	5 10
1880	13 7	9 6	7 11	5 16
1881	12 18	8 12	7 3	5 12
1882	12 11	8 2	7 6	5 14
1883	11 4	7 10	6 14	5 7

GERMANY

The average prices of grain at Königsberg, from 1815 to 1886, were as follows, per ton :—

Years	Wheat	Rye	Years	Wheat	Rye
	£ s.	£ s.		£ s.	£ s.
1815–16 . .	8 4	5 10	1851–52 . .	8 4	6 9
1817–18 . .	12 1	7 10	1853–54 . .	11 13	8 13
1819–20 . .	6 15	4 12	1855–56 . .	15 4	11 4
1821–22 . .	5 5	3 11	1857–58 . .	9 6	6 2
1823–24 . .	4 1	2 18	1859–60 . .	9 2	5 18
1825–26 . .	3 14	2 16	1861–62 . .	10 7	6 15
1827–28 . .	5 12	3 16	1863–64 . .	7 12	5 4
1829–30 . .	7 9	3 11	1865–66 . .	8 7	5 16
1831–32 . .	7 19	5 0	1867–68 . .	12 13	9 5
1833–34 . .	5 7	4 4	1869–70 . .	9 9	6 14
1835–36 . .	4 12	3 14	1871–72 . .	11 11	7 2
1837–38 . .	5 13	4 1	1873–74 . .	11 17	8 2
1839–40 . .	8 6	4 4	1875–76 . .	9 12	7 1
1841–42 . .	8 12	5 4	1877–78 . .	10 10	6 15
1843–44 . .	6 2	4 6	1879–80 . .	9 19	7 10
1845–46 . .	8 6	6 17	1881–82 . .	10 3	8 0
1847–48 . .	9 6	6 14	1883–84 . .	8 13	6 12
1849–50 . .	6 19	3 12	1885–86 . .	7 16	6 5

The prices of grain at Hamburg were as follows, per ton :—

Year	Wheat	Rye	Barley	Oats
	£ s.	£ s.	£ s.	£ s.
1826	4 19	3 3	2 8	1 10
1827	6 18	6 10	4 4	4 2
1828	6 8	5 11	3 6	2 2
1829	12 14	5 19	4 14	2 16
1830	7 14	4 16	3 3	2 9
1831	11 10	7 7	4 14	3 1
1832	9 2	7 0	4 4	2 9
1833	6 6	5 1	3 8	2 3
1834	5 14	4 13	2 17	1 18
1835	5 7	5 0	3 5	2 3
1836	5 6	4 12	3 8	1 18
1837	6 18	5 12	3 18	2 14
1838	6 14	5 4	3 2	2 3
1839	13 0	7 13	4 19	3 5
1840	10 6	6 0	4 17	3 2
1841	8 2	8 8	3 17	2 19
1842	11 3	7 0	3 16	2 11
1843	8 7	7 0	4 1	2 16

Year	Wheat	Rye	Barley	Oats
	£ s.	£ s.	£ s.	£ s.
1844	8 15	6 2	4 1	3 0
1845	7 5	5 0	4 7	2 14
1846	10 10	7 14	4 9	3 6
1847	12 6	10 13	7 3	4 8
1848	10 17	6 19	4 16	3 5
1849	8 2	4 10	4 0	2 1
1850	8 2	4 10	3 12	2 3
1851	8 3	6 5	4 6	2 19
1852	8 15	8 8	5 4	3 0
1853	9 12	7 4	5 8	3 7
1854	14 18	12 8	7 13	4 18
1855	14 2	9 16	6 10	4 4
1856	16 18	13 13	8 3	5 1
1857	11 12	7 11	6 10	3 17
1858	9 10	7 0	5 2	4 10
1859	10 0	7 7	5 1	4 12
1860	10 17	8 2	7 0	4 13
1861	12 16	8 7	8 2	4 14
1862	14 0	9 17	6 5	4 13
1863	11 6	8 5	5 11	3 17
1864	9 0	6 8	5 17	3 19
1865	8 8	5 17	5 5	3 15
1866	11 10	7 15	8 0	5 7
1867	14 6	9 12	9 9	4 18
1868	16 0	13 7	9 1	5 12
1869	11 14	9 17	9 18	5 15
1870	10 5	7 9	7 12	4 6
1871	12 8	8 18	7 14	5 2
1872	13 16	9 10	9 10	4 18
1873	14 5	11 6	10 5	5 13
1874	10 14	9 8	9 8	6 5
1875	10 14	9 5	9 6	6 5
1876	11 7	9 3	7 15	5 14
1877	12 16	10 7	7 14	5 17
1878	12 5	9 1	9 7	5 11
1879	9 16	7 0	8 18	4 7
1880	12 19	9 16	9 5	4 16

The foregoing table is summed up as follows :—

Period	Wheat	Rye	Barley	Oats
	£ s.	£ s.	£ s.	£ s.
1826–30 . . .	7 14	5 5	3 11	2 12
1831–40 . . .	8 0	6 16	3 17	2 10
1841–50 . . .	9 6	6 15	4 8	2 18
1851–60 . . .	15 17	8 15	6 4	4 3
1861–70 . . .	12 9	8 15	7 9	4 13
1871–80 . . .	12 2	9 9	9 3	5 8

The prices of twenty-one principal articles of consumption were as follows, per ton :—

	1880	1887		1880	1887
	£ s.	£ s.		£ s.	£ s.
Barley . .	9 2	7 10	Pork . .	55 0	44 0
Beef . .	49 0	46 0	Potatoes . .	1 16	1 8
Coal . .	0 5	0 4	Rice . .	13 0	10 0
Coffee . .	63 0	78 0	Rye . .	7 4	6 10
Copper .	63 0	47 0	Silk . .	136 0	108 0
Cotton .	55 0	52 0	Sugar . .	33 0	23 0
Herring .	12 0	7 0	Tin . .	79 0	120 0
Iron . .	2 12	2 10	Tobacco . .	...	53 0
Mutton .	51 0	44 0	Wheat .	11 14	8 10
Oats . .	6 14	5 12	Wool . .	167 0	140 0
Petroleum .	8 0	6 0	Zinc . .	160 0	145 0

The prices of live stock in 1883 were as follows :—

	Horses	Oxen	Milch Cows
	£ s.	£ s.	£ s.
Prussia . . .	23 6	13 16	11 6
Bavaria . .	22 8	13 12	10 8
Saxony . .	33 0	13 0	12 2
Wurtemburg . .	20 10	14 12	11 10
All Germany . .	23 18	14 0	11 8

The prices of four principal articles in Germany in late years were as follows, per ton :—

Year	Cotton	Wool	Lead	Iron
	£ s.	£ s.	£ s.	£ s.
1879 . . .	62 0	167 0	15 0	2 12
1885 . . .	55 0	134 0	11 0	2 8
1886 . . .	49 0	133 0	13 0	2 3
1887 . . .	52 0	116 0	12 10	2 10
1888 . . .	53 0	130 0	14 0	2 12

AUSTRIA

The prices of grain in fifteen years, taking the gulden at 20 pence, were as follows, per ton :—

	Wheat	Rye	Barley	Oats	Maize
	£ s.	£ s.	£ s.	£ s.	£ s.
1874 . . .	11 14	9 9	9 0	7 2	7 2
1875 . . .	9 7	7 5	7 11	7 9	5 0
1876 . . .	9 16	8 0	7 15	7 9	5 3
1877 . . .	10 15	8 0	8 18	6 18	6 11
1878 . . .	9 14	6 9	8 0	5 15	5 18
1879 . . .	10 16	7 5	9 15	5 18	5 9
1880 . . .	11 14	9 0	8 5	6 2	6 11
1881 . . .	10 17	8 10	8 15	6 5	5 14
1882 . . .	9 18	7 7	8 10	6 5	6 14
1883 . . .	8 17	7 0	9 0	6 0	5 14
1884 . . .	8 0	6 10	8 17	6 0	5 18
1885 . . .	7 7	6 5	7 2	5 17	5 7
1886 . . .	7 14	6 0	7 18	5 11	5 5
1887 . . .	7 10	5 15	7 14	5 7	5 11
1888 . . .	6 17	5 7	7 10	5 0	5 3

The averages, in periods of five years, were as follows :—

Period	Wheat	Rye	Barley	Oats	Maize
	£ s.	£ s.	£ s.	£ s.	£ s.
1874–78 . .	10 5	7 17	8 5	6 17	5 19
1879–83 . .	10 8	7 16	8 17	6 2	6 0
1884–88 . .	7 10	6 0	7 16	5 11	5 9
Gen. average	9 7	7 4	8 6	6 3	5 16

The prices of some other commodities were as follows :—

	1882	1887		1882	1887
	£ s.	£ s.		£ s.	£ s.
Butter, ton . .	72 0	53 0	Rice, ton . .	13 15	16 0
Cheese, ,, .	54 0	55 0	Straw, ,, . .	...	1 18
Coffee, ,, .	80 0	102 0	Sugar, ref., ton	35 0	29 0
Hay, ,, .	...	2 16	Tea, ton . .	233 0	268 0
Potatoes, ton .	3 7	3 15	Tobacco, ton	90 0	90 0
Raisins, ,, .	17 10	17 10	Wine, 100 gal.	...	18 15

HUNGARY

The prices of rural products were as follows, per ton :—

	1884	1886
	£ s. d.	£ s. d.
Barley	6 14 0	7 5 0
Beef	...	42 0 0
Hemp	29 4 0	26 14 0
Maize	5 4 0	5 0 0
Mutton	...	31 10 0
Oats	5 12 0	5 2 0
Pork	...	38 10 0
Potatoes	3 7 0	2 10 0
Rye	6 14 0	5 8 0
Wheat	8 0 0	6 14 0
Wool	95 0 0	79 0 0
Wine, 40 gallons . .	...	2 14 0

ITALY

The prices of wheat per ton in the Udine market from 1606 to 1875 were as follows:—

Period	Highest	Lowest	Average	Year of Highest	Year of Lowest
	£ s.	£ s.	£ s.		
1606–10 . .	7 14	3 17	5 11	1601	1610
1611–20 . .	6 11	4 16	5 16	1618	1611
1621–30 . .	12 6	5 13	7 16	1628	1625
1631–40 . .	8 1	2 15	5 5	1631	1639
1641–50 . .	12 11	4 2	7 0	1649	1645
1651–60 . .	6 12	3 17	5 3	1656	1659
1661–70 . .	5 16	3 10	4 11	1664	1666
1671–80 . .	6 4	3 10	5 1	1677	1673
1681–90 . .	5 9	2 18	4 2	1685	1688
1691–1700 .	7 6	4 5	5 15	1696	1691
1701–10 . .	8 4	3 16	5 8	1709	1702
1711–20 . .	6 10	4 10	5 9	1717	1720
1721–30 . .	5 7	3 10	4 7	1729	1727
1731–40 . .	7 0	3 16	5 13	1735	1731
1741–50 . .	7 10	4 14	6 3	1747	1745
1751–60 . .	8 1	5 0	6 5	1751	1754
1761–70 . .	9 14	4 15	6 18	1766	1762
1771–80 . .	10 17	6 8	8 5	1774	1776
1781–90 . .	10 13	7 7	8 16	1788	1781
1791–1800 .	19 2	7 15	11 5	1800	1791
1801–10 . .	19 12	8 5	13 0	1801	1808
1811–20 . .	23 2	7 7	13 2	1816	1819
1821–30 . .	9 14	5 0	7 1	1828	1824
1831–40 . .	9 12	7 1	8 0	1839	1834
1841–50 . .	12 0	6 10	9 4	1846	1844
1851–60 . .	14 12	8 13	11 14	1855	1851
1861–70 . .	11 18	8 7	10 7	1867	1864
1871–75 . .	15 0	10 3	13 6	1873	1875

The prices of maize in the Udine market from 1626 to 1875 were per ton as follows:—

Period	Highest	Lowest	Average	Year of Highest	Year of Lowest
	£ s.	£ s.	£ s.		
1626–30 . .	9 5	3 6	5 10	1628	1626
1631–40 . .	3 6	1 12	2 8	1633	1639
1641–50 . .	8 10	1 18	3 18	1649	1645
1651–60 . .	3 16	2 0	2 11	1656	1659
1661–70 . .	3 11	1 10	2 2	1663	1669
1671–80 . .	4 10	1 18	2 12	1675	1678
1681–90 . .	4 1	1 10	2 4	1685	1682
1691–1700 .	4 18	2 5	3 6	1695	1700
1701–10 . .	3 16	1 14	2 17	1709	1703
1711–20 . .	4 4	1 14	3 5	1717	1720
1721–30 . .	3 2	1 13	2 7	1724	1727
1731–40 . .	4 11	2 6	3 5	1739	1734
1741–50 . .	4 9	2 8	3 4	1750	1748
1751–60 . .	6 1	2 3	3 13	1751	1753
1761–70 . .	6 7	2 16	4 5	1763	1761
1771–80 . .	7 1	3 15	5 2	1772	1775
1781–90 . .	8 10	3 12	5 7	1782	1790
1791–1800 .	16 2	4 19	7 17	1800	1791
1801–10 . .	15 4	5 9	8 15	1802	1808
1811–20 . .	16 18	3 5	8 14	1816	1819
1821–30 . .	8 0	3 13	5 8	1830	1823
1831–40 . .	8 4	3 19	5 10	1839	1831
1841–50 . .	8 7	4 18	5 18	1846	1844
1851–60 . .	10 11	5 14	7 4	1853	1858
1861–70 . .	8 3	4 6	6 4	1861	1868
1871–75 . .	9 12	6 5	8 0	1871	1875

Nothing is more surprising than the great difference of prices of grain in Italian cities. For instance, wheat in 1865 was £2 per ton dearer in Florence than in Genoa, and in 1877 it was £3 dearer in Genoa than in Florence, as shown in the following table:—

Year	Wheat		Maize	
	Genoa	Florence	Verona	Florence
	£ s.	£ s.	£ s.	£ s.
1862 . . .	13 0	14 16	9 8	7 16
1863 . . .	12 10	14 7	6 14	5 8
1864 . . .	12 0	13 19	6 15	6 8
1865 . . .	11 0	13 0	6 6	6 8
1866 . . .	12 10	12 15	7 2	6 5
1867 . . .	15 14	14 18	7 14	7 15
1868 . . .	16 0	15 16	6 17	7 11
1869 . . .	12 16	13 18	5 10	5 6
1870 . . .	13 18	13 10	6 14	5 19
1871 . . .	14 11	14 16	10 10	7 18
1872 . . .	14 6	15 9	10 13	9 1
1873 . . .	15 14	16 4	8 14	8 11
1874 . . .	14 0	15 15	11 5	9 6
1875 . . .	12 0	12 11	7 3	6 1
1876 . . .	12 14	13 6	7 4	5 14
1877 . . .	17 8	14 2	8 16	7 12
1878 . . .	14 8	13 4	8 15	8 8
1879 . . .	12 9	13 0	8 4	7 8
1880 . . .	13 12	13 4	9 12	8 15
1881 . . .	11 5	11 8	7 16	7 4
1882 . . .	11 4	11 4	9 2	7 8
1883 . . .	10 10	10 16	7 3	6 15
1884 . . .	9 7	10 6	6 10	6 6
1885 . . .	9 0	10 7	6 9	6 2

In the above tables the depreciated paper money of the years 1866 to 1882 is converted into gold at the average rates for each year, the premium on gold varying from 4 to 14 per cent.

The prices of rice, wine, and olive-oil were as follows:—

Year	Rice, Ton	Wine, 100 Gallons	Olive-Oil, 100 Gallons
	Milan	Rome	Rome
	£ s.	£ s.	£ s.
1862 . . .	13 0	9 16	22 0
1863 . . .	12 7	8 4	18 8
1864 . . .	13 7	8 2	17 12
1865 . . .	13 2	8 10	17 0
1866 . . .	13 8	6 8	18 0
1867 . . .	14 4	6 10	22 16
1868 . . .	13 12	8 5	21 12
1869 . . .	12 16	9 8	17 0
1870 . . .	10 14	8 13	16 4
1871 . . .	12 15	4 16	16 12
1872 . . .	14 12	5 12	18 8
1873 . . .	15 4	7 0	20 4
1874 . . .	15 0	6 16	...
1875 . . .	15 4	6 4	17 12
1876 . . .	15 12	5 8	16 12
1877 . . .	15 8	12 4	19 10
1878 . . .	13 4	12 6	23 4
1879 . . .	14 4	7 7	17 4
1880 . . .	14 0	5 17	22 0
1881 . . .	12 12	7 4	19 10
1882 . . .	13 0	9 8	17 0
1883 . . .	15 8	8 10	18 0
1884 . . .	14 4	8 5	20 4
1885 . . .	12 10	10 8	18 8
1862–65 . . .	12 19	8 13	18 15
1866–70 . . .	12 19	7 17	19 2
1871–75 . . .	14 11	6 2	18 4
1876–80 . . .	14 9	8 12	19 14
1881–85 . . .	13 11	8 15	18 12
General average .	13 18	8 0	18 17

Rice ranged from £10 14s. in 1870 to £15 12s. in 1876; wine from £4 16s. in 1871 to £12 6s. in 1878; and oil from £16 4s. in 1870 to £23 4s. in 1878. It would seem, therefore, that wine is subject to much more violent fluctuations of price than either rice or oil.

The prices of best beef per ton were as follows :—

Year	Milan (£ s.)	Naples (£ s.)	Florence (£ s.)
1862	42 10	52 8	50 0
1863	47 10	51 4	52 0
1864	45 12	61 4	53 4
1865	46 0	57 4	54 0
1866	43 0	53 5	52 0
1867	44 8	51 4	54 0
1868	45 0	60 8	54 0
1869	48 15	63 10	56 0
1870	50 8	63 12	54 0
1871	50 16	60 0	45 12
1872	52 15	63 4	48 2
1873	66 8	78 0	51 0
1874	60 4	82 0	61 0
1875	58 16	69 10	62 10
1876	55 4	69 5	63 6
1877	53 12	67 4	63 14
1878	53 16	62 16	69 0
1879	53 16	59 12	68 0
1880	53 12	67 0	68 5
1881	55 16	74 10	76 4
1882	51 4	76 0	80 0
1883	54 0	79 4	85 12
1884	56 0	82 8	91 10
1885	60 0	79 4	87 0

SWITZERLAND.

The price of meat per ton from 1845 to 1881 averages thus :—

Period	Beef (£ s.)	Mutton (£ s.)	Pork (£ s.)	Average (£ s.)
1845–51	32 0	32 0	33 0	32 7
1852–61	39 0	41 0	42 0	40 13
1862–71	52 0	52 0	43 0	49 0
1872–81	62 0	64 0	54 0	60 0

The prices of other commodities were :—

	1885 (£ s.)	1888 (£ s.)		1885 (£ s.)	1888 (£ s.)
Barley, ton	8 10	9 6	Spirits, 100 gall.	9 1	8 11
Butter, ,,	54 0	70 0	Sugar, ton	27 0	19 10
Cheese, ,,	74 0	70 0	Tea, ,,	204 0	204 0
Coffee, ,,	52 0	84 0	Tobacco,,	65 0	41 0
Oats, ,,	6 17	6 12	Wheat, ,,	8 10	9 1
Potatoes,,	2 0	3 2	Wine,100 gallons	8 3	5 11
Raisins ,,	18 0	18 10			
Rice, ,,	15 16	13 10			

Mr. Secretary Mühlemann, of Berne, gives the following table of prices per ton :—

Year	Wheat (£ s.)	Rye (£ s.)	Barley (£ s.)	Year	Wheat (£ s.)	Rye (£ s.)	Barley (£ s.)	Year	Wheat (£ s.)	Rye (£ s.)	Barley (£ s.)
1784	9 4	6 10	5 14	1812	18 7	12 3	9 16	1854	20 18	14 17	10 0
1785	13 8	8 2	6 16	1813	16 4	9 9	8 0	1855	18 8	11 13	8 14
1786	11 14	6 12	5 6	1814	12 2	7 13	6 10	1856	17 14	10 3	8 1
1787	11 8	6 12	5 6	1815	12 18	8 6	6 14	1857	15 6	10 11	8 15
1788	13 8	8 16	6 14	1816	23 17	15 10	12 5	1858	9 16	6 2	5 14
1789	14 0	10 0	8 2	1817	32 15	20 12	16 14	1859	10 12	6 7	5 17
1790	15 10	9 12	7 12	1832*	...	9 17	7 13	1860	14 18	10 12	8 7
1791	12 0	7 0	6 0	1833	...	7 1	6 10	1861	14 14	9 17	7 7
1792	12 0	7 0	6 0	1834	...	5 4	5 6	1862	12 17	7 14	6 18
1793	15 13	9 18	8 10	1835	...	5 4	5 7	1863	12 10	6 10	6 8
1794	20 12	14 12	12 2	1836	...	5 18	5 14	1864	...	6 14	6 17
1795	26 4	16 9	13 0	1837	...	5 19	5 5	1865	...	7 4	6 18
1796	16 8	10 1	8 11	1838	...	6 7	5 14	1866	...	7 17	7 6
1797	13 1	6 7	5 18	1839	...	7 11	6 7	1867	...	11 4	8 7
1798	14 18	5 12	5 16	1840	...	7 11	6 9	1868	...	9 17	8 6
1799	15 0	7 12	6 15	1841	...	6 7	5 0	1869	...	6 8	6 16
1800	17 2	11 2	9 1	1842	...	7 0	5 10	1870	...	7 2	7 8
1801	15 3	10 7	8 11	1843	...	9 12	7 5	1871	13 6	8 12	8 12
1802	19 6	11 12	8 15	1844	...	8 10	8 0	1872	13 14	8 3	8 5
1803	18 6	11 3	8 14	1845	...	8 3	6 17	1873	14 10	9 3	8 19
1804	12 6	7 6	6 16	1846	12 0	8 10		1874	14 0	9 17	9 19
1805	15 10	7 17	6 6	1847	22 0	16 10	11 17	1875	10 15	8 3	8 19
1806	17 15	10 10	8 14	1848	12 0	6 16	5 12	1876	11 8	8 13	9 5
1807	12 17	8 0	6 8	1849	10 2	6 10	5 0	1877	13 0	9 14	10 3
1808	11 16	6 16	6 1	1850	10 13	6 17	5 9	1878	11 18	8 16	9 10
1809	9 18	6 8	6 1	1851	11 8	7 16	6 4	1879	11 1	9 4	8 15
1810	10 18	6 14	5 17	1852	13 2	9 2	6 10	1880	12 8	9 4	9 4
1811	15 17	8 11	7 0	1853	15 4	10 1	6 10	1881	11 11	8 15	9 3

The price of common bread at Berne per 10 lbs. was as follows, in pence :—

Year	Pence	Year	Pence	Year	Pence	Year	Pence	Year	Pence	Year	Pence	Year	Pence	Year	Pence	Year	Pence	Year	Pence
1800	25	1808	16	1816	30	1824	16	1832	22	1847	28	1854	26	1861	20	1868	21	1875	20
1801	21	1809	16	1817	41	1825	15	1833	17	1848	16	1855	24	1862	18	1869	17	1876	20
1802	24	1810	16	1818	22	1826	13	1834	17	1849	15	1856	22	1863	17	1870	20	1877	22
1803	24	1811	21	1819	16	1827	13	1835	16	1850	16	1857	21	1864	17	1871	21	1878	20
1804	20	1812	25	1820	15	1828	16	1836	17	1851	17	1858	15	1865	17	1872	23	1879	20
1805	23	1813	23	1821	16	1829	17	1845†	17	1852	19	1859	17	1866	18	1873	21	1880	20
1806	24	1814	19	1822	15	1830	18	1846	20	1853	20	1860	20	1867	22	1874	23	1881	20
1807	19	1815	19	1823	14	1831	21												

* There is a gap in the table from 1817 till 1832.   † There is a gap from 1836 to 1845.

The preceding table may be summed up thus :—

Years	Average, Pence	Maximum Year
1800-10	20.1	1800
1811-20	23.1	1817
1821-30	15.3	1830
1831-50	18.7	1847
1851-60	20.2	1854
1861-70	18.7	1867
1871-81	21.0	1872

The price of the best potatoes per ton was as follows ;—

Year	£ s.	Year	£ s.	Year	£ s.
1846	5 10	1858	3 8	1870	4 4
1847	7 10	1859	4 2	1871	4 4
1848	4 2	1860	5 16	1872	6 0
1849	3 7	1861	5 19	1873	5 0
1850	3 12	1862	3 11	1874	3 12
1851	4 14	1863	4 1	1875	4 4
1852	5 4	1864	4 8	1876	5 0
1853	5 7	1865	4 12	1877	5 1
1854	7 0	1866	4 4	1878	5 8
1855	5 12	1867	5 13	1879	5 13
1856	4 18	1868	4 9	1880	4 11
1857	5 10	1869	3 14	1881	5 8

DENMARK.

Dr. Broch gives the following table of prices per ton at Copenhagen :—

Period	Rye	Barley	Oats	Period	Rye	Barley	Oats
	£ s.	£ s.	£ s.		£ s.	£ s.	£ s.
1601-10	3 8	2 18	...	1851-52	6 10	4 18	3 3
1611-20	3 9	3 3	...	1853-54	9 7	6 8	4 13
1621-30	5 16	4 1	...	1855-56	9 8	7 9	5 3
1631-40	4 8	3 12	2 1	1857	6 1	5 16	4 4
1641-50	4 16	3 17	2 1	1858	5 12	5 3	3 17
1651-60	4 1	3 9	1 15	1859	6 0	5 3	3 17
1661-70	4 7	3 9	2 1	1860	6 15	6 4	3 19
1671-80	4 1	3 3	2 4	1861	8 12	6 5	4 0
1681-90	3 18	3 0	1 17	1862	6 11	5 8	3 18
1691-1700	5 1	3 11	2 3	1863	5 10	4 11	3 3
1701-10	4 1	3 1	1 14	1864	6 10	5 6	4 7
1711-20	4 6	3 4	1 18	1865	7 14	6 1	4 15
1721-30	3 15	2 17	1 12	1866	7 7	7 3	4 11
1731-40	3 12	2 16	1 9	1867	11 4	7 19	5 10
1741-50	4 2	2 14	1 11	1868	8 17	8 11	6 6
1751-60	4 4	3 2	2 0	1869	6 8	5 8	3 17
1761-70	5 6	3 11	2 1	1870	7 6	6 8	4 9
1771-80	5 5	3 9	2 3	1871	8 3	6 19	4 11
1781-90	5 14	4 9	2 18	1872	7 16	7 10	4 12
1791-1800	6 10	4 11	3 3	1873	9 12	8 6	5 10
1801-10	9 18	5 14	3 17	1874	8 8	8 3	6 0
1819-30	3 18	2 16	2 0	1875	8 0	7 14	5 12
1831-40	4 15	3 9	2 9	1876	8 8	7 16	5 17
1841-50	5 9	4 3	2 18	1877	7 3	7 9	4 16
1851-60	7 5	6 0	4 4	1878	6 8	6 10	4 2
1861-70	7 13	6 6	4 9	1879	7 4	7 2	4 7
1871-80	8 1	7 10	5 0	1880	9 7	7 10	5 1

The prices from 1811 to 1818 cannot be given, owing to the fluctuations of paper money. All the above prices are reduced to silver.

The preceding table arranged in half centuries shows thus :—

Period	Rye	Barley	Oats
	£ s.	£ s.	£ s.
1601-50 . . .	4 8	3 11	2 1
1651-1700 . . .	4 6	3 8	2 0
1701-50 . . .	4 0	2 18	1 13
1751-1800 . . .	5 8	4 10	2 9
1801-50 . . .	4 13	3 9	2 9
1851-80 . . .	7 14	6 11	4 11

SWEDEN AND NORWAY

The following list of prices is official :—

	Sweden		Norway	
	1882	1888	1882	1888
	£ s.	£ s.	£ s.	£ s.
Bacon, ton	...	...	50 0	40 0
Barley, ,, ...	6 12	5 2	7 3	5 6
Butter, ,, ...	78 0	67 0	95 0	61 0
Cheese, ,, ...	52 0	56 0	64 0	63 0
Cocoa, ,, ...	81 0	85 0	84 0	79 0
Coffee, ,, ...	42 0	91 0	52 0	72 0
Fish, ,, ...	20 5	19 0	...	...
Flour, ,, ...	...	...	14 3	10 18
Lard, ,, ...	63 0	33 0	...	...
Maize, ,, ...	7 0	6 10	7 18	5 19
Oats, ,, ...	7 0	4 19	6 16	4 16
Pork, ,, ...	63 0	39 0	...	...
Potatoes, ton . . .	1 16	2 16	...	...
Raisins, ,, . . .	31 0	33 0	31 0	21 0
Rice, ,, . . .	9 17	11 10	12 8	11 0
Sugar, ref. ,, . . .	33 0	21 0	33 0	21 0
Tea, ,, . . .	145 0	168 0	145 0	118 0
Tobacco, ,, . . .	...	...	62 0	60 0
Wheat, ,, . . .	14 14	8 4	10 3	7 18

HOLLAND

The prices paid per ton at the Meerenberg Hospital for supplies by tender were :—

	Wheat Bread	Rye Bread	Butter	Beef	Rice	Potatoes	Peas
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
1851	18 8	7 4	68 0	31 0	17 12	4 4	13 4
1852	18 10	8 0	68 0	29 0	14 8	3 12	12 0
1853	18 10	7 4	68 0	30 0	14 8	3 18	13 16
1854	24 0	10 16	70 0	40 0	16 12	3 6	12 6
1855	25 5	10 8	74 0	43 0	17 12	3 6	14 8
1856	21 0	8 16	84 0	44 0	17 4	4 4	13 5
1857	16 4	6 0	83 0	45 0	14 4	3 6	10 18
1858	14 8	4 16	96 0	46 0	13 4	2 18	10 14
1859	14 8	4 16	92 0	40 0	11 4	...	14 13
1860	14 16	...	91 0	50 0	11 16	4 16	12 16
1861	17 4	6 8	85 0	44 0	13 10	...	14 3
1862	17 5	7 0	83 0	43 0	14 16	4 16	14 18
1863	14 16	6 12	79 0	39 0	12 12	3 12	10 4
1864	13 15	5 8	78 0	37 0	12 0	2 18	9 14
1865	12 0	5 0	85 0	41 0	10 8	3 2	10 1
1866	13 16	5 12	93 0	46 0	12 16	4 10	12 7
1867	16 15	6 7	83 0	44 0	14 8	3 19	13 3
1868	18 8	8 0	75 0	43 0	14 16	3 5	13 8
1869	14 16	5 12	86 0	47 0	13 12	3 12	13 8
1870	12 0	5 8	85 0	45 0	11 4	3 11	11 16
1871	14 8	5 16	89 0	45 0	12 8	3 16	12 18
1872	16 0	5 12	89 0	48 0	12 8	3 16	10 16
1873	16 12	6 0	82 0	55 0	12 12	3 2	12 10
1874	17 12	7 12	85 0	55 0	12 10	2 18	14 0
1875	12 16	5 12	90 0	53 0	11 4	3 15	14 10
1876	13 12	6 8	90 0	49 0	11 12	3 5	16 4
1877	15 12	7 12	94 0	51 0	12 0	3 5	15 10
1878	16 8	7 4	83 0	54 0	12 15	4 16	14 4
1879	14 0	6 8	76 0	56 0	12 0	3 14	14 4
1880	14 16	7 4	76 0	45 0	13 4	4 14	19 14
1881	14 8	8 10	82 0	52 0	13 2	3 10	16 12
1882	14 16	8 0	77 0	52 0	11 4	3 5	15 16
1883	14 12	7 15	76 0	58 0	9 18	4 2	14 8
1884	14 0	7 4	76 0	58 0	10 4	3 2	13 15

	Highest	Lowest
Bread . . .	£25 5s. in 1885	£12 0s. in 1870
Butter . . .	96 0s. in 1858	68 0s. in 1851
Beef . . .	58 0s. in 1883	29 0s. in 1852
Rice . . .	17 12s. in 1851	9 18s. in 1883

BELGIUM

The following is an official statement of prices from 1840 to 1887 :—

	1840			1850			1860			1870			1880			1887		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Barley, ton	8	8	0	6	0	0	9	8	0	9	0	0	8	12	0	6	6	0
Beef, ,,	...			...			50	0	0	63	0	0	65	0	0	50	0	0
Beer, 40 gallons	...			0	17	6	0	17	6	1	10	0	1	17	0	2	10	0
Butter, ton	...			...			85	0	0	119	0	0	129	0	0	104	0	0
Cheese, ,,	28	0	0	40	0	0	56	0	0	60	0	0	60	0	0	60	0	0
Coal, ,,	...			0	12	0	0	12	9	0	12	0	0	11	3	0	9	6
Coffee, ,,	56	0	0	52	0	0	68	0	0	56	0	0	84	0	0	88	0	0
Cotton, ,,	68	0	0	64	0	0	60	0	0	92	0	0	80	0	0	48	0	0
Cows	...			...			...			13	12	0	13	4	0	11	4	0
Flax, ton	...			64	0	0	60	0	0	52	0	0	68	0	0	40	0	0
Hay, ,,	2	14	0	2	6	0	2	12	0	4	4	0	4	10	0	3	8	0
Hemp, ton	...			40	0	0	32	0	0	44	0	0	48	0	0	32	0	0
Honey, ,,	35	0	0	28	0	0	28	0	0	40	0	0	36	0	0	20	0	0
Horses	14	8	0	14	8	0	17	4	0	30	0	0	30	0	0	30	0	0
Iron wares, ton	24	0	0	20	0	0	7	4	0	6	16	0	6	16	0	4	8	0
Lard, ton	40	0	0	40	0	0	48	0	0	44	0	0	36	0	0	28	0	0
Oats, ,,	7	4	0	5	8	0	8	4	0	8	10	0	7	10	0	5	14	0
Pigs	1	4	0	1	0	0	1	8	0	1	10	0	1	6	6	1	6	6
Potatoes, ton	2	14	0	2	16	0	3	8	0	3	8	0	4	2	0	3	10	0
Rye, ,,	7	14	0	5	16	0	8	12	0	8	8	0	8	18	0	5	10	0
Sheep	...			...			...			1	16	0	2	1	6	1	16	6
Silks, cwt.	...			...			600	0	0	600	0	0	260	0	0	312	0	0
Steel, ton	52	0	0	52	0	0	52	0	0	48	0	0	16	0	0	4	16	0
Straw, ,,	1	16	0	1	6	0	1	12	0	2	12	0	2	14	0	2	4	0
Sugar, ,,	28	0	0	26	0	0	29	0	0	24	10	0	22	0	0	11	12	0
Timber, cubic metre	...			...			3	4	0	1	16	0	2	4	0	2	4	0
Wheat, ton	11	10	0	8	8	0	12	10	0	11	14	0	11	8	0	7	16	0
Wool, ,,	...			...			...			84	0	0	152	0	0	72	0	0
Woollens, cwt.	64	0	0	40	0	0	40	0	0	36	0	0	46	0	0	28	0	0
Yarn, cotton, ton	...			...			128	0	0	252	0	0	180	0	0	112	0	0
,, linen, ,,	...			...			...			200	0	0	160	0	0	84	0	0
,, woollen, ton	...			320	0	0	360	0	0	260	0	0	400	0	0	260	0	0

UNITED STATES

The prices in Massachusetts from 1780 to 1880 were as follows :—

	1780-1800	1801-20	1821-30	1831-40	1841-50	1851-60	1861-80
Apples, bushel pence	10	22	22	35	44	50	...
Beans, quart ,,	2	4	4	4	3	4	4
Beef, lb. ,,	2	4	4	4	4	6	7
Boots, pair shill.	25	22	20	15	10	9	...
Brandy, gallon ,,	6	7	6	...	8	...	...
Butter, lb. pence	8	11	9	11	10	13	16
Calico, yard ,,	25	19	15	12	8	5	...
Cambric, yard ,,	63	40	18	13	11	10	...
Candles, lb. ,,	11	11	8	7	7	14	...
Cheese, ,, ,,	5	6	4	5	5	6	7
Cider, gallon ,,	3	9	10	7	8	5	...
Codfish, lb. ,,	2	2	2	2	2	3	4
Coffee, ,, ,,	11	13	10	7	6	8	16
Cottons, yard ,,	18	18	10	7	6	6	...
Eggs, dozen ,,	4	11	8	10	10	11	14
Fish, lb. ,,	2	3	2	2	3	2	...
Flannel, yard ,,	21	33	29	22	19	20	16
Flour ,,	2	3	2	2	2	2	3
Gin ,,	62	58	60	65	...	...	...
Gloves ,,	27	26	26	23	20	30	32
Ham ,,	11	...	5	5	5	6	7
Handkerchiefs, each ,,	33	28	22	22	25	21	26
Herrings, dozen ,,	4	8	4	5	6	4	...
Hose, pair ,,	37	55	30	26	19	22	25
Lamb, lb. ,,	4	4	3	4	4	6	...
Lard, ,, ,,	...	8	5	6	5	7	7
Linen, yard ,,	18	28	23	29	19	27	...
Maize, bushel ,,	40	59	41	39	36	50	...
Milk, quart ,,	2	2	2	3	3	3	3
Molasses, gallon pence	24	36	19	22	15	22	34
Muslin, yard ,,	26	37	29	27	18	13	11
Mutton, lb. ,,	3	4	3	4	4	6	8
Oats, bushel ,,	24	32	21	27	27	...	...
Pork, lb. ,,	5	6	4	5	5	6	5
Potatoes, bushel ,,	15	24	18	25	39	43	50
Raisins, lb. ,,	8	9	7	5	5	7	...
Rice, lb. ,,	2	3	2	3	3	3	5
Rye, bushel ,,	52	67	44	52	50	75	...
Rum, gallon ,,	35	51	38	...	...	...	...
Salt, bushel ,,	40	48	36	33	33	...	...
Shoes, pair ,,	48	64	63	68	53	55	...
Silks, yard ,,	46	65	40	33	42	49	50
Soap, lb. ,,	7	6	5	6	6	4	4
Starch, lb. ,,	12	11	8	8	6	6	5
Sugar, ,, ,,	7	8	7	7	5	4	5
Tallow, ,, ,,	8	7	6	3	4	...	...
Tea, ,, ,,	40	52	41	28	27	26	32
Veal, ,, ,,	3	4	4	4	5	6	8
Vinegar, gallon ,,	8	13	9	10	8	8	...
Wine, ,, ,,	75	83	66	...	63	...	...
Wood, foot ,,	19	21	22	41	30	35	45

The prices of grain, cotton, and refined sugar per ton of 2240 lbs., at port of shipment, from 1817 to 1889 were, reduced to English gold, as follows :—

Year	Wheat		Maize		Cotton		Sugar	
	£	s.	£	s.	£	s.	£	s.
1817	17	6	12	10	122	0	117	0
1818	15	8	8	7	158	0	117	0
1819	9	12	6	5	112	0	102	0

Year	Wheat £ s.	Maize £ s.	Cotton £ s.	Sugar £ s.
1820	5 15	5 5	81 0	93 0
1821	6 3	3 14	74 0	71 0
1822	5 8	6 4	77 0	69 0
1823	10 6	5 0	55 0	56 0
1824	7 17	3 15	72 0	58 0
1825	7 19	4 3	98 0	65 0
1826	6 10	6 6	57 0	74 0
1827	5 3	5 0	47 0	66 0
1828	5 16	4 1	50 0	65 10
1829	12 6	4 9	47 0	50 0
1830	7 17	4 4	47 0	57 0
1831	10 4	5 16	43 10	49 10
1832	8 4	5 5	47 0	50 0
1833	7 1	5 16	52 0	45 10
1834	8 6	5 11	60 0	43 10
1835	8 8	6 9	78 0	37 0
1836	7 14	7 3	78 0	54 0
1837	12 3	8 4	66 0	55 0
1838	10 4	7 2	48 0	43 0
1839	11 13	7 11	68 0	51 0
1840	7 6	4 18	40 0	53 0
1841	7 6	4 18	48 0	47 0
1842	8 12	4 16	37 0	39 0
1843	6 11	3 9	28 10	36 0
1844	6 19	4 2	37 0	35 10
1845	6 12	4 2	27 10	38 0
1846	8 0	5 8	36 0	44 10
1847	10 13	7 7	47 0	37 0
1848	10 3	5 10	35 0	35 0
1849	8 16	5 0	30 0	31 0
1850	8 3	4 18	57 0	48 0
1851	7 14	4 5	56 10	38 0
1852	7 6	4 17	37 10	33 0
1853	8 12	5 1	46 0	33 0
1854	12 0	6 6	45 0	35 10
1855	12 17	7 9	40 0	35 0
1856	14 16	6 5	45 0	41 0
1857	11 14	5 16	59 0	54 10
1858	7 16	5 14	54 10	57 0
1859	7 6	6 8	54 10	45 0
1860	7 11	6 2	51 0	42 0
1861	9 12	5 8	52 0	41 0
1862	7 15	4 0	94 0	41 0
1863	7 0	3 15	186 0	37 0
1864	5 3	3 6	188 0	33 10
1865	9 10	7 7	233 0	60 0
1866	7 15	5 0	140 0	52 0
1867	7 0	5 18	102 0	32 0
1868	10 16	6 14	65 0	47 0
1869	8 2	5 18	84 0	52 0
1870	8 16	6 14	95 0	51 10
1871	9 3	5 16	60 0	56 0
1872	10 4	5 5	78 0	51 10
1873	8 16	5 8	74 0	47 0
1874	10 4	5 9	65 0	45 0
1875	7 12	6 5	60 0	45 0
1876	8 12	5 0	55 0	45 10
1877	8 13	4 10	53 0	53 0
1878	10 4	4 11	50 0	47 0
1879	8 4	3 18	47 0	39 0
1880	9 13	4 10	53 0	42 0

Year	Wheat £ s.	Maize £ s.	Cotton £ s.	Sugar £ s.
1881	8 11	4 11	53 0	43 0
1882	9 9	5 12	53 0	45 10
1883	8 12	5 14	51 0	43 0
1884	8 2	5 2	49 10	32 0
1885	6 13	4 10	50 0	30 0
1886	6 15	4 3	47 0	31 10
1887	6 17	4 0	45 0	28 0
1888	6 10	4 11	46 0	29 0
1889	6 19	4 0	46 10	35 0

The Iron and Steel Association publish the following prices (reduced to English gold) per English ton :—

Year	Pig Iron £ s.	Bar £ s.	Iron Rails £ s.	Steel Rails £ s.
1846	5 16	19 1	...	...
1847	6 5	17 18	...	...
1848	5 10	16 9	13 0	...
1849	4 15	14 1	11 4	...
1850	4 6	12 8	10 0	...
1851	4 9	11 8	9 11	...
1852	4 14	12 4	10 0	...
1853	7 10	17 7	16 2	...
1854	7 13	19 0	16 13	...
1855	5 15	15 10	13 2	...
1856	5 12	15 6	13 8	...
1857	5 10	14 15	13 8	...
1858	4 12	13 0	10 8	...
1859	4 18	12 10	10 5	...
1860	4 15	12 5	10 0	...
1861	4 4	12 13	8 17	...
1862	4 7	12 10	7 11	...
1863	5 2	13 5	11 0	...
1864	6 5	15 5	13 2	...
1865	6 2	14 2	13 2	...
1866	7 0	14 16	12 15	...
1867	6 13	13 0	12 15	25 0
1868	5 1	12 15	12 2	24 0
1869	6 6	12 13	12 1	20 10
1870	6 1	14 8	13 0	18 10
1871	6 11	14 13	13 1	18 5
1872	8 15	17 18	15 14	20 10
1873	7 16	15 15	13 16	22 0
1874	5 13	12 15	11 0	14 14
1875	4 13	11 0	8 13	12 10
1876	4 3	9 14	7 14	11 2
1877	3 15	9 2	7 0	9 1
1878	3 11	9 0	6 17	8 13
1879	4 9	10 15	8 12	10 1
1880	5 18	12 10	10 5	14 1
1881	5 5	12 0	9 16	12 15
1882	5 7	12 14	9 8	10 2
1883	4 13	10 9	...	7 17
1884	4 3	9 3	...	6 8
1885	3 15	8 8	...	5 18
1886	3 18	9 0	...	7 3
1887	4 7	10 6	...	7 14
1888	3 19	9 15	...	6 1
1889	3 14	8 17	...	5 14

The *American Almanac* gives the following prices from 1825 to 1886 (reduced to English gold) :—

	1825-30 £ s.	1831-40 £ s.	1841-50 £ s.	1851-60 £ s.	1861-70 £ s.	1871-80 £ s.	1881-86 £ s.
Beef, ton	22 0	25 0	22 0	23 0	22 0	22 0	27 10
Butter, ton	70 0	80 0	61 10	89 0	106 0	104 0	102 0
Cheese, ,,	33 0	37 0	29 0	38 0	46 0	52 0	47 0
Coal, ,,	1 13	1 14	1 5	1 5	1 6	0 19	0 16
Coffee, ,,	65 0	55 0	36 0	49 0	71 0	77 0	50 0
Cotton, ,,	56 0	58 0	39 0	50 0	170 0	65 0	52 0
Fish, ,,	13 0	20 10	26 0	37 0	34 0	30 0	44 0
Flour, ,,	13 0	17 0	13 0	14 0	12 10	12 0	10 6
Hams, ,,	47 0	49 0	35 0	46 0	45 0	42 0	65 0
Iron, ,,	10 18	9 7	6 13	6 1	6 2	6 11	4 11

	1825–30		1831–40		1841–50		1851–60		1861–70		1871–80		1881–86	
	£	s.	£	s.	£	s.	£	s.	£	s.	£	s.	£	s.
Leather, ton . . .	98	0	89	0	73	0	102	0	104	0	116	0	107	0
Maize, ,, . . .	5	0	6	13	5	14	6	13	6	7	4	13	5	2
Pork, ,, . . .	30	0	39	0	25	0	39	0	40	0	34	0	34	0
Rice, ,, . . .	14	0	17	0	21	0	19	0	33	0	32	0	25	0
Sugar, ,, . . .	35	0	32	0	29	0	29	0	39	0	33	0	28	0
Tobacco, ,, . . .	19	0	33	0	27	0	42	0	58	0	40	0	37	0
Wheat, ,, . . .	8	10	10	10	9	0	12	3	11	13	10	0	8	2
Wool, ,, . . .	125	0	152	0	125	0	162	0	176	0	181	0	172	0

Prices at New York, reduced to English gold, from 1855 to 1889 :—

Year	Flour, barrel		Leather, cwt.		Bacon, cwt.		Lard, cwt.		Pork, cwt.		Beef, cwt.		Butter, cwt.		Cheese, cwt.		Tobacco, cwt.		Petroleum, 100 gallons		Eggs (120)	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
1855	38	0	90	0	39	0	48	0	34	0	41	0	84	0	50	0	...		...		...	
1856	35	0	121	0	43	0	48	0	41	0	35	0	92	0	48	0	...		...		...	
1857	29	0	130	0	48	0	60	0	47	0	35	6	88	0	47	0	...		...		...	
1858	23	0	113	0	44	0	53	0	41	0	40	6	83	0	42	0	...		...		...	
1859	25	0	113	0	49	0	53	0	37	0	33	0	76	0	42	6	...		...		...	
1860	25	0	107	0	41	0	52	0	35	0	30	0	70	0	47	6	...		...		...	
1861	24	0	95	0	45	0	46	6	40	0	30	6	71	0	48	6	...		...		...	
1862	20	0	84	0	30	0	35	0	27	0	30	0	64	0	33	0	...		95	0	...	
1863	19	0	93	0	28	0	33	0	22	0	24	0	62	0	33	0	...		53	0	...	
1864	15	0	80	0	26	0	27	0	22	0	20	0	68	0	28	0	...		108	0	...	
1865	28	0	120	0	70	0	60	0	49	0	36	0	100	0	66	0	...		198	0	...	
1866	24	0	95	0	56	0	65	0	54	0	47	0	114	0	56	0	52	0	165	0	9	0
1867	27	0	115	0	42	0	49	0	47	0	41	0	82	0	50	0	36	0	108	0	11	0
1868	31	0	80	0	42	0	49	0	38	0	41	0	94	0	47	0	38	0	87	0	9	0
1869	24	0	...		52	0	63	0	49	0	31	0	126	0	56	0	40	0	120	0	...	
1870	22	0	112	0	65	0	65	0	53	0	30	0	119	0	65	0	46	0	111	0	14	0
1871	24	0	107	0	47	0	54	0	46	0	37	0	92	0	58	0	38	0	95	0	10	0
1872	26	0	98	0	36	0	42	0	30	0	30	0	80	0	49	0	43	0	93	0	7	6
1873	27	0	102	0	36	0	37	0	32	0	32	0	90	0	52	0	44	0	90	0	9	0
1874	26	0	107	0	41	0	40	0	34	0	34	0	104	0	54	0	41	0	65	0	8	0
1875	22	0	106	0	46	0	57	0	41	0	35	0	98	0	56	0	46	0	51	0	9	0
1876	23	0	111	0	50	0	55	0	45	0	36	0	101	0	53	0	44	0	52	0	10	0
1877	26	0	108	0	49	0	49	0	40	0	34	0	92	0	53	0	46	0	84	0	9	6
1878	25	0	100	0	39	0	40	0	32	0	36	0	82	0	52	0	39	0	59	0	6	6
1879	22	0	95	0	32	0	33	0	27	0	29	0	65	0	41	0	36	0	45	0	6	6
1880	24	0	109	0	31	0	35	0	28	0	30	0	79	0	45	0	35	6	35	0	7	0
1881	23	0	105	0	38	0	44	0	35	0	30	0	92	0	52	0	39	0	43	0	7	0
1882	25	0	98	0	47	0	54	0	42	0	39	0	89	0	52	0	39	6	37	0	8	0
1883	25	0	99	0	53	0	56	0	46	0	41	0	87	0	53	0	40	0	36	0	8	6
1884	23	0	96	0	48	0	45	0	37	0	35	0	85	0	48	0	42	6	38	0	8	9
1885	20	0	93	0	44	0	37	0	34	0	35	0	78	0	45	0	47	0	36	0	8	9
1886	19	6	93	0	35	0	33	0	28	0	28	0	72	0	38	0	36	0	36	0	7	6
1887	18	6	88	0	37	0	34	0	31	0	25	0	73	0	45	0	40	0	32	0	6	9
1888	19	0	81	0	39	0	36	0	35	0	24	6	85	0	47	0	39	0	32	6	6	6
1889	20	0	77	0	39	0	39	0	35	0	25	6	76	0	45	0	41	0	32	0	5	9

Retail prices in 1870 were as follows :—

	New England		Middle States		Southern		Western		Union	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Beef, lb. . . .	0	10	0	9	0	5	0	6	0	7
Butter, lb. . . .	1	10	1	8	1	5	1	3	1	7
Coal, ton . . .	46	0	31	0	40	0	32	0	44	0
Cheese, lb. . .	0	10	1	0	1	1	1	0	1	0
Coffee, ,, . .	1	4	1	3	1	2	1	2	1	3
Eggs, dozen . .	1	5	1	2	1	0	0	11	1	2
Flour, barrel . .	40	0	30	0	36	0	25	0	30	0
Lard, lb. . .	1	0	0	10	1	0	0	11	0	11
Mutton, ,, . .	0	8	0	7	0	5	0	5	0	7
Milk, gallon . .	1	2	1	6	2	0	1	2	1	6
Molasses, gallon .	4	2	4	0	4	2	4	4	4	2
Pork, lb. . . .	0	9	0	7	0	6	0	6	0	7
Potatoes, bushel .	2	10	3	5	4	6	2	2	3	0
Petroleum, gallon .	2	0	2	3	3	0	2	4	2	6
Rice, cwt. . .	60	0	60	0	60	0	60	0	60	0
Soap, ,, . .	56	0	47	0	51	0	47	0	50	0
Sugar, ,, . .	65	0	70	0	78	0	74	0	70	0
Tea, lb. . . .	4	10	5	6	8	0	6	8	5	10

PRICE-LEVELS.

Mr. Jevons constructed several price-levels from 1782 to 1869, as follows :—

Table of Forty Classified Articles.

Years	Metals	Fibre	Grain	Colonial Products	General Average
1782	100	100	100	100	100
1783–90 . . .	95	102	109	88	91
1791–1800 . . .	116	119	135	86	112
1801–10 . . .	150	157	170	71	133
1811–20 . . .	124	134	166	72	115
1821–30 . . .	102	97	135	56	88
1831–40 . . .	91	96	134	53	83
1841–50 . . .	88	76	127	42	73
1851–60 . . .	97	84	132	39	79
1861–69 . . .	93	105	128	40	77

General Table at Intervals of Ten Years.

Year	Number	Year	Number	Year	Number
1789	100	1819	131	1849	75
1799	151	1829	93	1859	90
1809	184	1839	108	1869	89

Table of Price-Level from 1846 to 1869.

Year	Number	Year	Number	Year	Number
1846	100	1854	115	1862	108
1847	106	1855	112	1863	107
1848	89	1856	117	1864	106
1849	85	1857	123	1865	105
1850	87	1858	108	1866	111
1851	87	1859	110	1867	102
1852	89	1860	112	1868	104
1853	106	1861	110	1869	103

According to the prices given by Arthur Young, the following is a general price-level from A.D. 1301 down to his time, and continued to 1884:—

	1301–1400	1401–1500	1501–1600	1601–1700	1701–1800	1801–50	1880–84
Cattle	100	95	80	160	246	350	500
Beer	100	80	80	80	160	280	350
Butter	100	75	75	100	125	250	350
Grain	100	95	133	270	330	350	240
Horses	100	105	100	132	346	700	800
Wine	100	70	130	200	500	600	700
Eggs	100	100	70	70	135	160	270
Meat	100	85	65	200	300	400	550
Total	800	705	733	1212	2142	3090	3760

The following price-levels embrace a period of forty years to 1884:—

Years	Jevons	Economist	Hamburg	Soetbeer	Average
1845–50	100	100	100	100	100
1851–55	107	...	112	114	111
1856–60	120	127	121	125	123
1861–65	123	...	124	127	125
1866–70	121	140	124	125	127
1871–75	...	127	133	136	132
1876–80	...	115	123	127	122
1881–84	...	105	118	124	116

Sauerbeck's and other index-numbers for late years are as follows:—

Sauerbeck		Kral		Economist		Hamburg	
Year	No.	Year	No.	Year	No.	Year	No.
1867–77	100	1861–70	100	1845–50	100	1847–50	100
1873	111	1871	98	1871–77	124	1851–60	116
1878	87	1872	107	1878	115	1861–70	124
1879	83	1873	112	1879	100	1871–75	133
1880	88	1874	109	1880	115	1876–80	123
1881	85	1875	106	1881	108	1881	121
1882	84	1876	101	1882	111	1882	122
1883	82	1877	100	1883	106	1883	122
1884	76	1878	94	1884	101	1884	114
1885	72	1879	93	1885	94	1885	109
1886	69	1880	97	1886	92	1886	104
1887	68	1881	94	1887	95	1887	103
1888	70	1882	96	1888	99	...	...
1889	72	1883–84	90	1889	99	...	...

The *Economist* index-numbers for twenty principal articles of merchandise showed as follows:—

	1845–50	1857	1870	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1881–90
Calico	100	113	135	95	101	99	92	88	81	85	85	86	89	91	90
Coffee	100	151	134	151	122	100	82	106	89	84	153	199	166	186	129
Copper	100	133	83	81	75	86	80	71	57	49	48	88	71	64	69
Cotton	100	95	173	110	105	102	89	92	90	80	85	88	93	92	92
Flax	100	121	116	78	71	75	68	76	79	78	76	64	67	64	72
Indigo	100	121	151	205	197	195	190	151	145	141	131	129	126	120	153
Iron	100	121	88	92	79	86	78	69	72	67	62	67	70	109	76
Lead	100	143	109	112	87	88	83	70	68	75	72	82	74	82	78
Leather	100	150	128	144	144	139	139	139	143	141	135	132	130	130	137
Meat	100	105	123	119	146	125	145	123	127	113	110	114	108	123	123
Oil	100	141	126	106	95	94	100	110	89	83	75	74	78	82	88
Silk	100	204	174	135	130	139	126	117	88	98	129	113	110	114	116
Sugar	100	123	83	70	60	67	60	54	44	46	37	46	61	42	52
Tallow	100	147	105	102	89	103	111	113	85	68	64	77	87	75	87
Tea	100	162	102	141	100	89	76	92	80	93	77	81	64	62	81
Timber	100	103	99	105	106	110	108	100	97	92	89	85	110	115	101
Tin	100	166	138	109	110	134	114	104	100	118	122	140	115	120	118
Wheat	100	118	80	88	82	84	77	73	60	58	66	58	55	56	67
Wool	100	146	96	117	120	108	106	98	91	92	114	107	108	120	106
Total	2,000	2,563	2,243	2,160	2,019	2,023	1,924	1,846	1,685	1,661	1,730	1,830	1,782	1,847	1,835

Index-numbers according to Board of Trade prices for British imports were as follows:—

	1854–60	1861–70	1871–80	1881–88	1889
Bacon	100	96	88	91	81
Barley	100	102	98	76	66
Beef	100	95	110	120	102
Brandy	100	71	84	98	98
Butter	100	120	131	125	126
Cheese	100	108	108	99	92
Cigars	100	93	123	104	102
Cochineal	100	76	62	30	28
Cocoa	100	104	137	158	144

	1854–60	1861–70	1871–80	1881–88	1889
Coffee	100	131	181	149	169
Copper	100	73	61	43	35
Cotton	100	222	106	90	87
Currants	100	58	75	75	67
Eggs	100	109	142	124	120
Flax	100	115	105	83	76
Flour	100	83	94	72	64
Gloves	100	130	125	112	108
Guano	100	102	92	76	58
Hemp	100	96	92	84	95
Hides	100	94	90	80	75
Hops	100	87	88	98	67
Indigo	100	108	85	76	65

	1854-60	1861-70	1871-80	1881-88	1889
Jute	100	105	91	72	77
Lard	100	98	82	76	64
Maize	100	85	80	66	55
Molasses	100	88	70	58	57
Nitre	100	82	84	70	60
Oats	100	98	96	76	68
Oil	100	108	84	70	68
Oil-seeds	100	110	107	82	79
Oranges	100	92	73	61	50
Oxen	100	112	130	125	115
Pepper	100	80	104	142	142
Pork	100	104	91	84	80
Potatoes	100	128	157	180	228
Raisins	100	81	96	92	87
Rice	100	103	83	68	68
Rum	100	70	60	50	50
Saltpetre	100	75	63	53	50
Seeds	100	88	74	67	64
Sheep	100	98	110	104	85
Silk	100	90	62	50	48
Sugar	100	81	70	51	49
Tallow	100	81	74	59	48
Tea	100	113	95	71	66
Tobacco	100	157	109	105	98
Wheat	100	85	85	66	57
Wine	100	50	67	65	67
Wood	100	99	83	72	73
Wool	100	87	69	55	48
Total	5,000	4,921	4,727	4,252	4,026

	1854-60	1861-70	1871-80	1881-88	1889
Wire	100	100	87	68	74
Wool	100	125	116	74	65
Worsted	100	140	110	92	88
Yarn, cotton	100	167	125	97	92
,, linen	100	123	123	108	112
,, woollen	100	123	112	82	77
Zinc	100	79	74	51	55
Total	5,000	5,077	4,872	4,151	4,047

The summary of import and export numbers is :—

	Imports	Exports	Total
1854-60	5,000	5,000	10,000
1861-70	4,921	5,077	9,998
1871-80	4,727	4,872	9,599
1881-88	4,252	4,151	8,403
1889	4,026	4,047	8,073

The foregoing method, however, has the disadvantage that all articles are treated as of equal importance, wheat the same as gunpowder in affecting the level of prices. The British Association appointed a committee under Professor Edgeworth to frame a more suitable method of price-level, and the committee adopted one similar to that of Mr. Jevons.

The following are the various scales that have been proposed :—

Index-numbers of British exports :—

	1854-60	1861-70	1871-80	1881-88	1889
Alkali	100	90	92	61	54
Bags	100	91	64	43	45
Beer	100	106	120	113	110
Books	100	93	75	67	59
Boots	100	113	103	97	90
Brass	100	92	83	70	75
Butter	100	97	124	126	115
Candles	100	74	61	47	36
Carpets	100	113	110	84	80
Cement	100	93	91	75	68
Cheese	100	103	103	100	95
Cloth	100	133	137	140	151
Coal	100	104	133	95	111
Copper	100	80	73	55	43
Cordage	100	96	98	85	92
Cottons	100	140	103	80	76
,, printed	100	127	110	82	73
Firearms	100	136	112	120	112
Flannel	100	113	113	82	75
Glass	100	88	85	72	70
,, bottle	100	92	97	87	87
Gunpowder	100	85	81	81	83
Hats	100	92	68	52	52
Herrings	100	108	116	104	88
Horses	100	88	110	104	120
Iron, pig	100	85	111	72	75
,, rails	100	96	111	67	60
,, hoops	100	80	78	53	52
Jute	100	79	64	45	47
Lead	100	88	83	58	60
Leather	100	106	93	101	104
Linen	100	110	104	91	80
,, printed	100	118	101	91	83
Oilseed	100	106	88	69	70
Paper	100	71	65	45	39
Sailcloth	100	108	113	95	92
Salt	100	91	118	118	145
Soap	100	100	96	84	77
Silks	100	118	102	113	98
Spirits	100	67	108	173	188
Steel	100	91	94	65	44
Sugar	100	70	51	34	30
Tin	100	89	83	83	80

	Jevons	Edgeworth	Giffen	Sauerbeck	Soetbeer	Mulhall	Average
Butter*	35	75	75	30	45	80	57
Sugar	35	25	25	55	45	15	33
Wine	35	25	25	...	70	45	40
Wool	35	25	25	75	20	20	33
Silk	35	25	25	10	20	15	22
Tea and coffee	35	25	25	20	20	15	23
Wheat	35	65	50	110	45	100	67
Barley	35	65	50	55	45	35	47
Oats	35	65	50	60	20	50	47
Metals	70	50	50	15	40	80	51
Coal	...	...	100	...	...	40	70
Indigo	35	1	10	5	20	1	12
Flax	35	3	30	10	20	5	17
Palm-oil	35	1	10	...	20	1	13
Timber	70	30	30	20	70	60	47
Leather	70	25	25	20	70	40	62
Meat	110	100	100	155	90	120	113
Cotton	110	30	25	100	20	20	51
Sundries	150	365	370	260	320	258	195
Total	1000	1000	1000	1000	1000	1000	1000

* Butter includes also cheese and milk.

In the foregoing scales it will be observed that four writers took no account of coal, and one omitted wine. There seems to have been no good reason for inserting indigo and palm-oil, which are items of trifling value, while fish, lard, rice, potatoes, and other important articles, are omitted. Another feature that seems inexplicable is, that four of the above writers give barley the same relative importance as wheat, whereas the latter, (see page 12) ought to be three times greater than the former. A similar remark applies to oats, which should stand for only half the value of wheat.

A general price-level for the principal countries from 1860-62 to 1883 is taken as follows from my *History of Prices* (Longmans, 1885) :—

| Year | Ratio of Values | | | | | |
	United Kingdom	France	Italy	Belgium	United States	Average
1860-62	100	100	100	100	100	100
1863	121	103	101	94	90	109
1864	138	107	100	96	106	120
1865	126	102	107	92	104	113
1866	127	98	98	97	170	116
1867	115	86	107	90	99	102
1868	110	87	105	87	107	101
1869	109	87	106	81	125	101
1870	100	80	105	85	108	95
Average	118	94	104	90	114	107
1871	100	83	106	97	112	97
1872	106	87	118	105	125	102
1873	110	89	122	103	100	103
1874	104	83	107	99	102	97
1875	99	78	96	97	96	92
1876	93	80	109	93	85	89
1877	94	77	100	97	101	91
1878	87	76	92	92	83	84
1879	84	80	97	89	90	85
1880	86	81	90	96	96	88
Average	96	81	104	97	99	92
1881	85	78	87	95	94	86
1882	85	76	82	83	98	85
1883	84	71	77	78	91	81
Average	85	75	82	85	94	84

The manner in which the above price-levels were arrived at was this. The trade of each country, imports and exports, was set down for each year side by side with what the amount would have been (seeing the quantities imported and exported) if the prices of 1860-62 had been maintained. As regards Great Britain, the exports of foreign and colonial merchandise are not included.

Actual trade returns (millions £ sterling) :—

Year	United Kingdom	France	Italy	Belgium	United States	Aggregate
1860-62	346	180	54	41	101	722
1863	396	203	61	46	59	765
1864	435	218	62	51	46	812
1865	437	229	61	54	47	828
1866	484	239	59	56	82	920
1867	456	234	65	55	99	909
1868	475	244	67	61	92	939
1869	485	249	69	64	106	973
1870	503	227	66	64	144	1,004
Average	428	216	61	52	89	847
1871	554	258	81	87	175	1,155
1872	611	293	94	93	193	1,284
1873	626	294	96	103	207	1,326
1874	610	288	91	96	210	1,295
1875	598	296	89	96	184	1,263
1876	576	303	101	101	182	1,263
1877	593	284	83	100	206	1,266
1878	562	294	82	103	225	1,256
1879	555	313	93	109	236	1,306
1880	634	340	91	116	308	1,489
Average	592	296	90	100	213	1,291
1881	631	337	96	117	314	1,495
1882	655	336	95	117	309	1,503
1883	667	330	99	116	312	1,524

At prices of 1860-62 (millions £ sterling) :—

Year	United Kingdom	France	Italy	Belgium	United States	Aggregate
1863	328	197	60	49	65	699
1864	315	204	62	53	43	677
1865	347	225	57	58	45	732
1866	381	244	60	58	48	791
1867	396	273	61	61	100	891
1868	432	280	64	70	86	932
1869	445	286	65	79	85	960
1870	503	283	63	75	133	1,057
Average	393	249	61	63	76	842
1871	554	310	77	90	156	1,187
1872	599	338	80	88	154	1,259
1873	570	330	78	100	207	1,285
1874	586	348	85	97	206	1,322
1875	604	380	93	99	192	1,368
1876	618	379	93	109	214	1,413
1877	631	368	83	103	204	1,389
1878	648	387	89	112	271	1,507
1879	657	391	96	122	262	1,528
1880	737	420	101	121	321	1,700
Average	620	366	87	104	219	1,396
1881	742	431	110	123	334	1,740
1882	770	442	116	141	306	1,775
1883	794	463	129	149	343	1,883
Average	769	445	118	138	328	1,798

The following price-level for twelve principal items of international consumption is taken from the same work (to which the late Professor Neumann Spallart alludes in his *Uebersichten Ueber Production*, 1886) :—

Price-Levels of the World for 100 Years.

| Years | Agricultural | | | | | | |
	Grain	Meat	Dairy	Wool	Cotton	Sugar	Total
1782-90	100	100	100	100	100	100	100
1791-1800	133	141	131	121	110	170	132
1801-10	165	188	167	259	75	138	166
1811-20	175	208	190	206	75	165	172
1821-30	118	157	153	90	46	113	113
1831-40	110	173	144	75	41	110	109
1841-50	105	165	155	60	26	101	102
1851-60	128	184	175	54	28	104	118
1861-70	123	194	198	46	61	110	123
1871-80	115	220	218	36	34	88	119
1881-84	98	244	222	30	29	64	113

| Years | Industrial | | | | | | |
	Hardware	Timber	Coal	Cottons	Woollens	Leather	Total
1782-90	100	100	100	100	100	100	100
1791-1800	124	138	109	107	112	128	116
1801-10	159	263	85	82	199	173	138
1811-20	181	238	91	82	161	168	136
1821-30	144	108	91	58	92	90	95
1831-40	124	127	71	54	84	100	87
1841-50	82	182	57	42	73	111	75
1851-60	75	144	61	36	68	103	69
1861-70	72	144	61	52	78	108	75
1871-80	85	128	61	37	75	96	70
1881-84	55	116	48	32	62	94	57

It appears from the above that agricultural products have risen 13 per cent., manufactures fallen 43 per cent., in price-level since 1782-90.

Beginning from 1841, we have in the following table a retrospect of values for 44 years; that is to say, if the same quantity of merchandise produced and consumed yearly from 1881 to 1884 were bought and sold at prices ruling in the four preceding decades, the amounts would be approximately as follows :—

	Millions, £ Sterling				
	1841–50	1851–60	1861–70	1871–80	1881–84
Grain	1,419	1,724	1,658	1,547	1,326
Meat	560	628	661	747	830
Hardware . . .	576	525	504	593	384
Dairy products .	236	266	303	333	340
Cotton goods . .	386	335	484	346	302
Woollen goods .	263	245	280	268	223
Timber	428	338	338	301	273
Coal	224	241	241	241	189
Leather	218	202	212	188	184
Potatoes . . .	115	125	154	164	181
Wine	86	105	111	111	130
Raw cotton . .	76	85	183	101	87
Wool	160	145	125	97	83
Books	120	115	105	87	79
Silks	68	82	104	88	73
Linens, &c. . .	77	74	78	74	70
Sugar	106	100	106	84	61
Coffee	23	30	38	50	42
Tobacco . . .	29	44	53	38	37
Tea	16	20	24	21	16
Total . .	5,186	5,429	5,762	5,479	4,910

The above twenty items comprise 90 per cent. of all human industries as regards products or manufactures, and therefore enable us to arrive at the variations of price-level for the whole world—that is, the rise or fall in the purchasing power of gold since 1850. The result is as follows :—

Years							
1841–50	.	.	.	.	.	.	100.0
1851–60	.	.	.	.	.	.	104.7
1861–70	.	.	.	.	.	.	111.1
1871–80	.	.	.	.	.	.	105.7
1881–84	.	.	.	.	.	.	94.7

PROSTITUTION

					Prostitutes	Per 10,000 Inhab.
London	.	.	.	.	31,800	83
Paris .	.	.	.	.	26,990	122
Berlin .	.	.	.	.	27,300	248
Lyons .	.	.	.	.	5,520	145
Marseilles	.	.	.	.	4,080	112
Bordeaux	.	.	.	.	2,610	125

The Paris police reports show that 89 per cent. are French, 11 per cent. foreign. According to the *Dict. des Sciences Med.*, 100 prostitutes may be expected in their lives to give birth to 60 infants; 100 married women to 480.

PROTECTION

In order to promote certain local products or manufactures, which in some cases could not be profitably cultivated otherwise, " protection " is given either by means of bounties or by heavy import dues on foreign goods.

UNITED KINGDOM.

Between the years 1690 and 1830 Great Britain paid the inhabitants of Belfast and Dundee 28 millions sterling to enable them to sell and export Irish and Scotch linen at less than cost. The export of linen has quadrupled since the bounties were abolished in 1830, the average bounty before that year having been £150,000 per annum.

Bounties on the exportation of grain in England averaged £160,000 per annum for some years, until their abolition in 1805.

FRANCE

In 1860, by virtue of the Cobden Treaty, it was stipulated that no duties on foreign imports should exceed 25 per cent. *ad valorem*. The treaty has since lapsed. In 1880 a system of shipping bounties was established as follows :—48 shillings per ton for building iron vessels, and 16 shillings for wooden ; 15 pence per ton per 1000 miles run on French-built vessels entering French ports ; 7½ pence per ton for French vessels not built in France. The amounts paid for these bounties were :—

Year				Building	Navigation	Total
1881	.	.	.	£38,000	£39,000	£77,000
1884	.	.	.	179,000	344,000	523,000
1886	.	.	.	120,000	303,000	423,000

There are also fishing bounties, which in some years reach £200,000, and sugar bounties, £600,000. The effect of the shipping bounties has certainly been to promote French shipping, viz.:—

Entries				1880	1887	Increase
French	.	.	.	3,614,000	4,770,000	33 per cent.
Foreign	.	.	.	8,750,000	8,710,000	...

In 1889 the duties were increased on imported food to protect the French farmers : cattle now pay 32 shillings, sheep 4 shillings per head, and wheat 50 shillings per ton. This causes bread to be at times so dear that municipal bakeries are established to sell cheap bread to the poor.

BELGIUM.

Sugar bounties average £170,000 a year in Belgium, and £150,000 in Holland.

UNITED STATES.

Protective duties in 1885 compelled San Francisco to pay £9 a ton for American made rails, when as good could be landed from England at £5 a ton. Iron ore at Pittsburg cost 40 shillings per ton, when Bilbao ores could be landed in New York at 12 shillings.

PUBLIC WORKS

There is no means of ascertaining the value or cost of these in the various countries. In France a sum of 402 millions sterling was expended in 80 years, down to 1880, on roads, bridges, harbours, and canals. In England about 200 millions have been spent on sanitary works and schools. The United States Government in 90 years, down to 1880, spent 93 millions sterling on public edifices, arsenals, lighthouses, &c. The system of dykes in Holland represents an outlay of 300 millions sterling. The following table shows the amount of loans for public works in the United Kingdom from 1817 to 1881 :—

				Advanced	Balance Due
Great Britain	.	.	.	£44,700,000	£26,020,000
Ireland .	.	.	.	31,800,000	6,100,000
Total	.	.	.	£76,500,000	£32,120,000

The total account of public works loans from 1792 to 1890 for the whole United Kingdom showed thus :—

Sums advanced	.	.	.	£115,324,000
Repaid by borrowers	.	.	.	63,979,000
Bad debts, &c.	.	.	.	12,685,000
Balance due in 1890	.	.	.	38,660,000

Q.

QUAKERS

There are 18,000 in the United Kingdom. They have a longer span of life than the general population, their death-rate during twenty years averaging only 18 per thousand as compared with 22 per thousand, probably the result of temperate habits. They have, however, one-fifth more insane than the rest of the population, namely, 33 per 10,000 against 28, which perhaps arises from inter-marriage.

QUICKSILVER

The *Times* published the following estimate of production :—

Year	Tons		
	United States	Spain, &c.	Total
1880 . .	2005	1995	4000
1889 . .	880	2500	3380
Average ten } years . }	1360	2280	3640

The Almaden mines in Spain were worked by the Romans : they still employ 4000 miners, who suffer a tremendous death-rate. In 1888 the value exported from Spain was £500,000. A flask of quicksilver weighs 76 lbs. According to Kolb, the production in California was as follows :—

Year	Flasks	Tons	Value	Value per Flask
1859 . . .	3,400	113	£26,000	7.6
1860 . . .	9,450	315	66,000	7.0
1865 . . .	42,500	1,420	232,000	5.5
1870 . . .	13,800	460	96,000	7.0
1876 . . .	41,100	1,370	342,000	8.3

It appears that the production has now fallen to 26,000 flasks or 880 tons yearly, being about equal to one-third of what is produced annually in Spain.

The annual production and consumption average :—

Production	Tons	Consumption	Tons
California . .	900	Great Britain .	1600
Spain . .	1100	United States . . .	600
Austria . .	300	China	500
Various . .	1000	Various . . .	600
Total . .	3300	Total . . .	3300

R.

RABBITS

The annual slaughter is supposed to reach 20 millions in Great Britain, 70 millions in France.* The annual exportation from Belgium averages 5 millions ; the importation into Great Britain, 3 millions. The consumption in Melbourne market is one million yearly. Rabbits were introduced into Australia a few years ago for food, but multiplied so rapidly as to become a pest. A single pair of rabbits can become multiplied in four years into 1,250,000. The Sydney Cabinet in the year 1887 destroyed 25,300,000 rabbits, having spent £700,000 in four years to mitigate the pest. Mr. Coghlan says that 100 million acres of land have been more or less injured by them. To check their onward march a fence of 290 miles between the Macquarie and Darling rivers was made at a cost of £24,000 ; another of 346 miles from the Murray River north ; another of 260 miles on the southern line of Queensland ; another of 340 miles from Albury to the Macquarie ; but the rabbits broke through. The number of rabbit-skins exported averages yearly :—

New South Wales   .   .   .   15,000,000
New Zealand   .   .   .   6,000,000
Victoria   3,000,000

besides 1000 bales yearly from South Australia. The Cabinet of Victoria spends £15,000 a year in killing rabbits.

RAILWAYS

The *Almanac de Gotha* gives the total mileage at various dates as follows :—

Year	Miles	Year	Miles
1830 . . .	210	1870 . . .	139,860
1840 . . .	5,420	1875 . . .	177,600
1850 . . .	23,960	1880 . . .	224,900
1860 . . .	67,350	1885 . . .	307,400

* De Foville questions the number of rabbits in France.

The Actual mileage, however, was as follows :—

	1840	1850	1860	1870	1880	1888
U. Kingdom	838	6,620	10,430	15,540	17,930	19,810
France . .	360	1,890	5,880	9,770	14,500	20,900
Germany . .	341	3,640	6,980	11,730	20,690	24,270
Russia . . .	16	310	990	7,100	14,020	17,700
Austria . .	90	960	2,810	5,950	11,500	15,610
Italy . . .	13	270	1,120	3,830	5,340	7,830
Spain . .	...	80	1,190	3,200	4,550	5,930
Portugal . .	...	...	40	440	710	1,190
Sweden . .	...	...	375	1,090	3,650	4,670
Norway . .	...	...	40	170	690	970
Denmark . .	...	20	70	470	830	1,220
Holland . .	11	110	200	780	1,440	1,700
Belgium . .	210	550	1,070	1,800	2,400	2,760
Switzerland .	...	15	650	890	1,600	1,870
Roumania .	...	...	...	150	860	1,530
Servia . .	...	...	...	...	100	340
Bulgaria . .	...	...	...	...	200	430
Greece . .	...	...	...	...	10	370
Turkey . .	...	...	40	390	700	900
Europe . .	1,679	14,465	31,885	63,300	101,720	130,000
U. States . .	2,820	9,020	30,630	53,400	93,670	156,080
Canada . .	16	70	2,090	2,500	6,890	12,700
Mexico . .	...	...	...	220	660	5,010
Peru . . .	...	...	50	250	1,180	1,630
Chili . . .	...	...	120	450	1,100	1,750
Brazil . . .	...	...	135	505	2,175	5,580
Argentina .	...	...	15	640	1,540	5,550
Uruguay . .	...	...	...	60	270	450
Japan . . .	...	...	...	...	75	910
India . . .	...	...	840	4,830	9,310	15,250
Australia . .	...	...	250	1,230	5,390	10,140
South Africa .	...	...	...	...	1,010	2,010
Algeria . .	...	...	...	...	780	1,840
Egypt . . .	...	...	275	550	1,120	1,260
West Indies .	...	...	...	100	650	1,280
Various . .	...	...	...	200	900	2,870
The World . .	4,515	23,555	66,290	128,235	228,440	354,310

The following table shows the condition of railways actually working, mostly for the years 1887-88 :—

	Miles	Cost, Millions £	Passengers, Millions	Goods, Tons, Millions	Receipts, £	Expenses, £	Net, £
England	13,980	714	720	239	62,000,000	32,400,000	29,600,000
Scotland	3,100	114	74	39	8,000,000	3,800,000	4,200,000
Ireland	2,730	37	22	4	2,900,000	1,500,000	1,400,000
United Kingdom . .	19,810	865	816	282	72,900,000	37,700,000	35,200,000
France	20,900	570	218	78	42,400,000	22,400,000	20,000,000
Germany	24,270	495	316	179	54,600,000	29,300,000	25,300,000
Russia	17,700	314	38	50	25,300,000	14,400,000	10,900,000
Austria	15,610	307	65	79	20,800,000	11,700,000	9,100,000
Italy	7,830	138	46	15	9,400,000	6,200,000	3,200,000
Spain	5,930	94	15	8	5,600,000	2,500,000	3,100,000
Portugal	1,190	19	3	1	900,000	400,000	500,000
Sweden	4,670	28	10	8	2,100,000	1,300,000	800,000
Norway	970	7	3	1	400,000	300,000	100,000
Denmark	1,220	10	9	3	800,000	680,000	120,000
Holland	1,700	35	18	8	2,300,000	1,300,000	1,000,000
Belgium	2,760	71	73	41	6,800,000	3,500,000	3,300,000
Switzerland . . .	1,870	37	27	9	3,300,000	1,800,000	1,500,000
Roumania . . .	1,530	29	2	2	1,100,000	650,000	450,000
Servia	340	6	1	...	200,000	100,000	100,000
Bulgaria . , . .	430	8	1	...	300,000	150,000	150,000
Greece	370	6	1	...	200,000	100,000	100,000
Turkey	900	16	1	1	600,000	300,000	300,000
Europe . . .	130,000	3,055	1,663	765	250,000,000	134,780,000	115,220,000
United States . . .	156,080	1,949	451	590	198,000,000	138,000,000	60,000,000
Canada . . .	12,700	151	12	18	8,400,000	6,200,000	2,200,000
Mexico . . .	5,010	62	13	1	1,000,000	700,000	300,000
Peru	1,630	41	...	...	...	...	...
Chili	1,750	14	...	...	2,000,000	1,200,000	800,000
Brazil	5,580	49	7	2	3,800,000	2,500,000	1,300,000
Argentina . . .	5,550	48	8	3	2,800,000	1,700,000	1,100,000
Uruguay	450	5	1	...	300,000	200,000	100,000
Japan	910	11	12	1	600,000	250,000	350,000
India	15,250	145	103	23	15,000,000	7,500,000	7,500,000
Australia	10,140	94	81	17	8,200,000	5,100,000	3,100,000
South Africa . . .	2,010	18	3	1	1,700,000	900,000	800,000
Algeria	1,840	26	4	2	1,400,000	900,000	500,000
Egypt	1,260	18	4	1	1,300,000	600,000	700,000
West Indies . . .	1,280	16	...	...	...	...	...
Java	790	7	...	...	...	...	...
Various	2,080	27	...	...	...	...	...
Total . . .	354,310	5,736	2,362	1,424	494,500,000	300,530,000	193,970,000

There are no particulars, except length of line, known as regards Servia, Bulgaria, Greece, and Turkey: it is assumed in the above table that the ratios per mile are the same as in Roumania. The cost of construction in Mexico, being unknown, is assumed to be the same as in the United States. In some cases the traffic is not for the same year as the mileage. Tables of traffic per mile are given farther on. In the preceding table there are blanks as regards traffic for 5780 miles, or 1½ per cent. of the total. Allowing for these blanks, the whole railway business of the world is summed up as follows:—

	Miles	Cost, Millions £	Millions Passengers	Millions Goods, Tons	Millions £ Receipts	Millions £ Expenses	Millions £ Net	Interest on Cost
Europe .	130,000	3,055	1,663	765	250	135	115	3.8
America .	191,010	2,348	507	619	219	153	66	2.8
Africa . .	5,530	67	12	5	5	3	2	3.0
Asia . .	17,630	172	121	25	17	9	8	4.6
Australia .	10,140	94	81	17	8	5	3	3.3
The World	354,310	5,736	2,384	1,431	499	305	194	3.4

The total mileage and cost of construction for Europe and the world at various dates were approximately as follows :—

	Europe			The World		
Year	Miles	Millions £	£ per Mile	Miles	Millions £	£ per Mile
1840	1,679	52	30,900	4,515	71	15,800
1850	14,465	404	27,800	23,555	465	19,800
1860	31,885	797	25,000	66,290	1,079	16,300
1870	63,300	1,476	23,300	128,235	2,097	16,400
1880	101,720	2,411	23,700	228,440	3,938	17,200
1888	130,000	3,055	23,300	354,310	5,736	16,100

A French scientific journal in 1890 summed up existing railways thus :—

	Miles
Europe	135,200
Asia	17,900
Africa	5,300
Australia	10,500
America	191,200
Total .	360,100

The amount of capital invested in railways at various dates was as follows :—

	Millions £ Sterling					
	1840	1850	1860	1870	1880	1888
United Kingdom	28	240	348	530	728	865
France	11	57	171	274	392	570
Germany	6	61	116	204	431	495
Russia	...	5	17	119	234	314
Austria	2	20	57	120	255	307
Italy	...	5	22	75	105	138
Spain	...	1	19	51	72	94
Portugal	...	...	...	7	11	19
Sweden	...	...	2	7	23	28
Norway	...	...	...	2	4	7
Denmark	...	...	1	4	7	10
Holland	...	2	4	13	25	35
Belgium	5	13	26	43	58	71
Switzerland	...	...	13	18	32	37
Roumania, &c.	...	...	1	9	34	65
Europe	52	404	797	1,476	2,411	3,055
United States	19	60	239	497	1,171	1,949
Canada	...	1	25	30	84	151
Spanish America	...	...	4	25	81	228
Japan	...	...	...	...	1	11
India	...	...	8	46	88	145
Australia	...	...	2	12	51	94
South Africa	...	...	...	...	9	18
Algeria	...	...	...	...	11	26
Egypt	...	...	4	8	16	18
West Indies	...	...	...	1	8	16
Various	...	...	...	2	7	25
The World	71	465	1,079	2,097	3,938	5,736

The progress of railway construction is shown as follows :—

	Miles Built Yearly		Capital Sunk Yearly, £	
	1841–70	1871–88	1841–70	1871–88
U. Kingdom	490	240	16,700,000	18,400,000
France	310	610	8,800,000	16,300,000
Germany	380	700	6,600,000	16,100,000
Russia	235	600	4,000,000	10,900,000
Austria	196	530	4,000,000	10,500,000
Italy	130	220	2,500,000	3,500,000
Spain	105	150	1,700,000	2,400,000
Portugal	15	40	250,000	650,000
Sweden	36	200	250,000	1,200,000
Norway	6	45	70,000	270,000
Denmark	16	42	130,000	330,000
Holland	26	52	430,000	1,200,000
Belgium	53	54	1,300,000	1,500,000
Switzerland	30	55	600,000	1,000,000
Roumania, &c.	18	166	300,000	3,100,000
Europe	2,046	3,704	47,630,000	86,350,000
United States	2,690	5,640	15,900,000	80,700,000
Canada	83	560	1,000,000	6,800,000
Spanish America	74	1,030	800,000	11,300,000
Japan	...	50	...	600,000
India	160	570	1,500,000	5,500,000
Australia	41	484	400,000	4,550,000
South Africa	...	111	...	1,000,000
Algeria	...	102	...	1,500,000
Egypt	18	40	270,000	550,000
West Indies	3	65	30,000	900,000
Various	7	105	70,000	1,400,000
Total	5,022	12,461	67,600,000	201,150,000

The following table shows the average cost of construction per mile, and also the latest traffic returns per mile (mostly for 1887–88) :—

	Construction, £	Receipts, £	Expenses, £	Net, £	Number of Passengers	Tons of Goods	Working Expenses, Percentage	Interest on Capital
United Kingdom	43,600	3,680	1,910	1,770	41,200	14,200	52	4.1
France	27,000	2,110	1,090	1,020	11,000	4,000	52	3.8
Germany	20,400	2,250	1,210	1,040	13,000	7,400	54	5.1
Russia	17,700	1,380	790	590	2,100	2,700	57	3.3
Austria	19,700	1,390	780	610	4,600	5,100	56	3.1
Italy	17,800	1,290	850	440	6,200	2,100	65	2.5
Spain	15,800	1,220	540	680	3,300	1,800	44	4.4
Portugal	15,800	900	390	510	2,700	1,000	43	3.3
Sweden	6,100	470	290	180	2,200	1,700	62	2.9
Norway	7,100	430	300	130	3,400	1,200	70	1.8
Denmark	8,000	700	600	100	7,800	2,700	86	1.2
Holland	20,600	1,350	750	600	10,900	4,800	54	2.9
Belgium	25,800	2,450	1,280	1,170	26,700	14,800	52	4.6
Switzerland	20,500	1,780	940	840	14,500	4,600	53	4.1
Roumania, &c.	15,700	1,080	650	430	...	...	60	2.7
Europe	23,400	1,940	1,050	890	12,800	5,900	54	3.7
United States	12,500	1,290	900	390	2,900	3,800	70	3.1
Canada	11,900	700	490	210	900	1,400	70	1.7
Spanish America	10,900	510	340	170	1,800	400	67	1.6
Japan	12,400	660	280	380	13,200	1,100	43	3.1
India	9,500	1,050	525	525	7,100	1,500	50	5.2
Australia	9,300	820	510	310	8,100	1,700	63	3.3
South Africa	8,900	800	420	380	1,500	500	52	4.3
Algeria	14,000	730	510	220	2,200	1,100	70	1.6
Egypt	14,100	1,050	480	570	3,200	800	46	4.1
The World	16,100	1,350	830	520	6,600	3,800	62	3.2

English lines are the most costly, Swedish the cheapest, the difference being as 7 to 1. Only India and Germany earn over 5 per cent. on capital, the average for the world being 3¼ per cent. There are 13 countries earning over the average, and 11 less than the average.

2 I

The passenger and goods traffic at various dates were approximately as follows :—

	Millions of Passengers				Goods, Millions Tons			
	1860	1870	1882	1888	1860	1870	1882	1888
U. Kingdom .	180	363	721	816	82	170	256	282
France . . .	57	103	180	218	22	52	90	78
Germany . .	48	136	210	316	24	98	157	179
Russia . . .	5	14	38	38	3	8	35	50
Austria . . .	12	21	44	65	7	25	57	79
Italy	6	24	34	46	1	6	10	15
Spain & Portugal	5	10	17	18	2	4	7	9
Scandinavia .	1	8	15	22	...	5	8	12
Holland . . .	2	6	18	18	1	2	4	8
Belgium . . .	17	41	56	73	7	27	37	41
Switzerland .	6	15	22	27	1	4	6	9
Roumania, &c.	...	1	4	6	...	...	2	3
Europe . . .	339	742	1,359	1,663	150	401	669	765
United States .	60	110	375	451	70	150	361	590
Canada . . .	2	3	8	12	2	4	11	18
Spanish America	1	4	14	36	...	1	5	9
India	4	20	64	103	...	3	12	23
Australia . .	6	18	44	81	...	2	9	17
Various . . .	1	3	10	38	...	1	3	8
The World . .	413	900	1,874	2,384	222	562	1,070	1,430

The rates for passengers and goods in 1883 in various countries, according to the *Jour. des Economistes*, were :—

	Pence per Ten Miles			Ton Goods, per 100 Miles
	1st Class	2nd Class	3rd Class	
U. Kingdom	21	16	10	140
France . .	20	15	10	110
Germany .	15	11	8	82
Russia . .	18	14	8	120
Austria . .	19	14	9	115
Italy . . .	18	13	9	125
Spain . . .	21	16	10	...
Portugal . .	18	14	10	...
Sweden . .	15	11	8	160
Norway . .	8	5	2½	120
Denmark .	16	11	8	144
Holland . .	16	13	8	78
Belgium . .	12	9	6	80
Switzerland .	19	13	10	165
Greece . .	14	9	7	...
Roumania .	36	14	10	78
Turkey . .	29	26	14	...

In the United States in 1888 the average compared with the rates on the Canadian Pacific line thus :—

	Pence per 100 Miles	
	Passenger	Ton Goods
United States . . .	112	52
Canada	90	51

The passenger rates are those of first class, and are lower than in Europe.

The speed on some of the principal railways is :—

	Miles	Hours	Minutes	Miles per Hour
London to Grantham	105	1	57	54
Paris to Poitiers . .	209	5	20	39
Berlin to Minden . .	202	5	35	37
Vienna to Pilsen . .	220	6	45	33
Rome to Pisa . . .	211	7	...	30
Madrid to Saragossa.	214	9	26	23
Lisbon to Oporto . .	212	11	...	19
N. York to Washington	230	5	18	44

The distribution of passengers in 1884 was as follows :—

	Percentage of Passengers			
	First	Second	Third	Total
England . . .	6	10	84	100
Scotland . . .	7	6	87	100
Ireland . . .	7	16	77	100
United Kingdom .	6	10	84	100
France . . .	7	34	59	100
Germany . . .	1	13	86	100
Russia . . .	2	9	89	100
Austria . . .	1	13	86	100
Italy	6	28	66	100
Sweden . . .	4	10	86	100
Norway . . .	...	8	92	100
Denmark . . .	1	14	85	100
Holland . . .	9	25	66	100
Belgium . . .	5	14	81	100
Switzerland . .	2	17	81	100
Roumania . . .	5	22	73	100
India	1	2	97	100

In European countries the highest ratio of first-class passengers is in Holland, of second class in France, and of third class in Norway.

The following table shows the earnings and expenses per mile run by locomotives in various countries in 1887–88 :—

	Miles Run	Pence per Mile Run			Miles Run per Locomotive
		Receipts	Expenses	Net	
United States . .	688,800,000	69	48	21	24,000
Germany	171,400,000	77	41	36	14,000
France	158,800,000	64	33	31	18,000
Italy	46,600,000	48	32	16	24,000
Austria	66,100,000	76	42	34	16,000
Switzerland . . .	13,100,000	61	33	28	22,000
Sweden	10,500,000	48	30	18	15,000
Holland	15,500,000	37	21	16	26,000
Belgium	32,700,000	50	26	24	14,000

The mileage run by locomotives in the United States far exceeds the aggregate mileage for the Continent of Europe. The cost of running in the United States is higher per mile than in Europe.

An ordinary locomotive has 300 horse-power, and burns one ton of coke for 40 miles of goods train, or 80 miles of passenger train. The life of a locomotive is usually fifteen years, during which it will run 240,000 miles, and earn £60,000. The price is usually £2000 ; and according to *Engineering*, Europe could turn out 6400 locomotives yearly, viz., Great Britain, 2200 ; Germany, 2000 ; France, 1000 ; Belgium, 500 ; Austria, 400 ; and other countries, 300. Boesig's factory at Berlin could make 300 yearly. Each locomotive has 5416 pieces. The first in use from Liverpool to Manchester in 1830 was of 8 tons, and had a speed of 20 miles an hour. In 1872 the largest in the United Kingdom were of 27 tons, rising in 1889 to 45 tons.

There are many 60-ton locomotives in the United States, and some in Canada of 70 tons. The weight of an empty passenger train in England is : locomotive, 35 ; tender, 25 ; two trucks, 12 ; eight carriages, 64 ; in all, 136 tons. If there be 60 passengers, their weight will be 3 tons, against 136 tons dead-weight. The engine of an express train consumes 10 gallons of water per mile ; some of the American locomotives have tenders with a capacity of 3000 gallons.

Jeans's table of rolling-stock in 1885 compares with mileage and traffic as follows :—

	Locomotives, Number	Carriages, Number	Waggons, Number	Locomotives, per 100 Miles	Carriages, per Million Passengers	Tons of Goods Carried per Waggon
U. Kingdom	15,200	33,700	464,000	76	41	610
France . .	8,800	19,700	223,000	44	90	340
Germany .	12,200	22,200	250,000	50	71	720
Russia . .	5,800	7,000	116,000	33	180	440
Austria . .	4,200	8,200	96,000	27	126	820
Italy . . .	1,900	5,600	32,000	25	122	460
Spain . .	1,200	3,700	22,000	20	245	360
Scandinavia	1,000	2,600	23,000	15	123	510
Holland .	600	1,600	8,000	35	90	1,000
Belgium .	2,300	5,000	56,000	84	68	740
Switzerland	600	1,800	9,000	33	67	1,000
Rouma-nia, &c. }	2,700	5,400	61,000	72	...	...
Europe . .	56,500	116,500	1,360,000	44	70	560
U. States .	28,600	18,000	804,000	18	40	740
Canada . .	1,500	1,300	38,000	12	105	480
Spanish America }	3,000	1,800	82,000	14	55	...
Australia .	2,300	2,100	69,000	23	26	250
India . .	3,000	1,900	82,000	20	18	270
Various . .	4,100	8,400	75,000	44	...	...
Total .	99,000	150,000	2,510,000	28	63	570

A French scientific journal in 1890 states that Europe has 61,000 locomotives, and the rest of the world 43,000, making a total of 104,000; it adds that England has 80 per 100 miles of railway, Germany 53, and France 47. The increase of rolling-stock in ten years was very great :—

	Europe		The World	
	1875	1885	1875	1885
Locomotives	42,000	56,500	62,000	99,000
Carriages .	90,000	116,500	112,000	150,000
Waggons .	1,000,000	1,360,000	1,470,000	2,510,000

Jeans adds that the above rolling-stock in 1875 carried 1371 million passengers and 715 million tons of goods.

The following table shows the steepest gradients in some of the most difficult railways :—

	Per Cent.			Per Cent.
Mont Cenis .	3.0	Oroya . .	.	6.0
Genoa-Turin .	3.5	Utliberg .	.	7.0
Darjeeling .	4.0	Cantagallo .	.	9.5
Tiflis . .	4.5	Righi . .	.	28.0
Einsiedlen .	5.0	Vesuvius .	.	63.0

The Righi is in one part as steep as a staircase, the Vesuvius as a ladder. Resistance increases with gradient, and if the normal figure be adopted of 8 lbs. per ton on level way, the resistance at various gradients will be :—

Gradient	Lbs. per Ton	Gradient	Lbs. per Ton
1 in 100 . .	15	5 in 100 . .	45
3 ,, . .	30	10 ,, . .	83

Resistance likewise increases with speed as follows, on level way :—

Miles per Hour	Lbs. per Ton	Miles per Hour	Lbs. per Ton
10 . .	8	40 . .	26
20 . .	14	50 . .	33
30 . .	17	60 . .	51

The resistance on a railway is only one-third of what it is on an ordinary highroad.

The standard gauge of the world may be said to be 4 ft. 8½ inches. In 1885 the lines were summed up thus :—

Gauge	Miles	Ratio
4 ft. 8½ in. . . .	224,000	74.0
Under 4 ft. 8½ in. . .	42,400	14.0
Over 4 ft. 8½ in. . .	36,600	12.0
Total . .	303,000	100.0

Steel rails average 130 tons per mile of way, iron 145 tons. The consumption of iron and steel for railways has been approximately as follows :—

Period	Europe, Tons	The World, Tons
1825-40 . . .	400,000	800,000
1841-60 . . .	8,500,000	12,500,000
1861-70 . . .	10,100,000	14,000,000
1871-80 . . .	13,200,000	23,400,000
1881-88 . . .	12,800,000	32,300,000
Total .	45,000,000	83,000,000

The weight of rail in England varies from 28 to 76 lbs. per yard. In 1882 the tonnage of rails in various countries was as follows (an estimate for 1888 is added) :—

	Tons of Rails			Tons per Mile of Rail	Tons Estimate in 1888
	Iron	Steel	Total		
United Kingdom	1,980,000	2,410,000	4,390,000	240	4,750,000
France	1,570,000	1,715,000	3,285,000	202	4,000,000
Germany	2,550,000	1,570,000	4,120,000	195	4,650,000
Russia	820,000	920,000	1,740,000	126	2,200,000
Austria	930,000	700,000	1,630,000	128	2,100,000
Belgium	265,000	255,000	520,000	210	600,000
Various	2,215,000	1,620,000	3,835,000	150	4,400,000
Europe	10,330,000	9,190,000	19,520,000	182	22,700,000
United States	7,200,000	5,200,000	12,400,000	118	18,600,000
Colonies, &c.	3,200,000	3,100,000	6,300,000	110	7,800,000
Total . .	20,730,000	17,490,000	38,220,000	152	49,100,000

The railways of greatest elevation are the following :—

Line	Over the	Feet Over Sea-Level	Date of Construction
Semmering . . .	Alps	2,970	1854
Santos—San Paulo	Serra Cubaton .	3,500	1866
St. Gothard . . .	Alps	3,780	1882
Mont Cenis . . .	Alps	4,290	1871
Aarlberg	Alps	4,320	1884
Bremer	Alps	4,450	1867
Union Pacific . .	Rocky Mountns.	8,573	1869
Uspallata . . .	Andes	10,570	1890
Mollendo . . .	Andes	14,610	1878
Lima-Oroya . .	Andes	15,840	1874

All the above are working except Clark's line over the Uspallata Pass, which will establish direct transit from Buenos Ayres to Valparaiso, and approaches completion. The Union Pacific has a length of 1780 miles, of which 300 are through mountains. The cost was £38,800,000, including a subsidy of £11,000,000 from Congress: it was begun in 1862, and the first train ran from Chicago on May 1, 1869, for the terminus on the Pacific at San Francisco. The company received, moreover, a grant of 34,000 square miles of land, or 23 million acres, in alternate lots 20 miles deep on either side of the line. The cost of construction was £22,000 per mile, varying from £11,000 in level country to £36,000 a mile in the Rocky Mountains.

The saving which railways have effected for the public welfare in the matter of freight charges has been computed in different countries. In Prussia, in 1878, it was estimated at £6300 a mile for goods and passengers; in Great Britain, in 1848, at £1500 for passengers only. It may be roughly estimated that railways as a rule have caused a saving to the public of each country equal to at least 10 per cent. per annum on the cost of construction.

The following table, according to latest returns, shows the number of persons killed or wounded by railways :—

	Killed			Wounded			Killed or Wounded	Per Million Passengers
	Passengers	Others	Total	Passengers	Others	Total		
United Kingdom	183	956	1,139	1,829	2,944	4,773	5,912	7.2
France	39	336	375	131	498	629	1,004	4.6
Germany	27	436	463	107	1,227	1,334	1,797	5.7
Russia	19	425	444	88	609	697	1,141	30.0
Austria	5	241	246	16	569	585	831	13.0
Italy	5	116	121	62	1,109	1,171	1,292	28.0
Spain	22	80	102	130	124	254	356	24.0
Portugal	1	7	8	7	16	23	31	10.3
Sweden	3	26	29	...	42	42	71	7.1
Norway	...	8	8	...	1	1	9	3.0
Denmark	...	...	11	...	...	56	67	7.4
Holland	4	37	41	4	31	35	76	4.2
Belgium	7	145	152	60	640	700	852	11.6
Switzerland	8	34	42	6	194	200	242	9.0
Europe	323	2,847	3,181	2,440	8,004	10,500	13,681	8.2

The railways of the United Kingdom pay £1400 a day compensation, of which 60 per cent. for damage to passengers, 40 per cent. to goods. In other countries the amount is unknown.

UNITED KINGDOM

The first regular railway for carrying passengers was opened from Stockton to Darlington, 27th September 1825.

The following table shows the development of railways :—

Year	Miles Open	Cost, £	Receipts, £	Expenses, £	Passengers Carried
1843	1,950	65,500,000	4,540,000	...	...
1846	3,040	126,300,000	7,570,000	...	43,800,000
1850	6,620	240,300,000	13,200,000	...	72,900,000
1855	8,280	297,600,000	21,500,000	10,300,000	118,600,000
1860	10,430	348,100,000	27,800,000	13,200,000	163,500,000
1870	15,540	529,900,000	43,400,000	21,700,000	330,200,000
1880	17,930	728,300,000	63,000,000	33,600,000	603,900,000
1888	19,810	864,700,000	72,900,000	37,800,000	742,500,000

Holders of season-tickets are not counted; add 10 per cent. for them.

The earnings and expenditure of thirty-four years are summed up thus :—

Period	Earnings, Millions £			Expenses, Millions £	Net Revenue, Millions £
	Passengers	Goods, &c.	Total		
1855–59 .	58	61	119	64	55
1860–69 .	159	185	344	169	175
1870–79 .	242	312	554	275	279
1880–88 .	265	336	601	302	299
34 years .	724	894	1618	810	808

In the first period, ending 1859, the passenger earnings were 49 per cent. of the total; in the second, ending 1869, they fell to 46 per cent.; in the third, ending 1879, to 44 per cent.; and in the fourth, ending 1888, they were likewise 44 per cent.

The mileage and traffic of the three kingdoms showed as follows :—

	Miles		Cost, £		Receipts, £ per Mile		Expenses, £ per Mile	
	1860	1888	1860	1888	1860	1888	1860	1888
England	7,580	13,980	289,000,000	714,000,000	3,090	4,430	1,490	2,310
Scotland	1,490	3,100	39,000,000	114,100,000	1,990	2,580	905	1,240
Ireland	1,360	2,730	20,100,000	36,600,000	1,030	1,060	440	560
United Kingdom . .	10,430	19,810	348,100,000	864,700,000	2,670	3,680	1,270	1,910

The following table (allowing mean average for missing years) shows the traffic during the same period, adding 10 per cent. for holders of season-tickets to the number of passengers :—

Period	Passen- gers, Millions	Goods, Millions Tons	Earnings, Pence	
			Per Passenger	Per Ton
1855–59 . .	740	348	18	42
1860–69 . .	2,620	1,160	15	38
1870–79 . .	5,270	1,923	11	39
1880–88 . .	6,780	2,328	9	35
34 years . .	15,410	5,759	11	37

The aggregate traffic for ten years ending December 1888 showed the three kingdoms as follows :—

	Mean		Passengers, Millions Carried	Goods, Millions Tons	Ten Years, Millions £		
	Capital, Millions £	Miles			Earnings	Ex- penses	Profit
England . . .	660	13,300	6,580	2,165	588	308	280
Scotland . . .	101	3,000	601	344	75	38	37
Ireland . . .	35	2,500	205	37	27	15	12
U. Kingdom .	796	18,800	7,386	2,546	690	361	329

From the above we derive the following averages :—

	Cost per Mile, £	Yearly Traffic per Mile		Annual Mileage			Interest on Capital per Cent.
		Passengers	Goods, Tons	Earnings, £	Expenses, £	Profit, £	
England	49,600	49,400	16,200	4,410	2,310	2,100	4.2
Scotland	33,700	20,000	11,500	2,500	1,270	1,230	3.7
Ireland	14,000	8,200	1,500	1,080	600	480	3.4
United Kingdom . .	42,200	39,300	13,500	3,670	1,920	1,750	4.1

The cost, traffic, and mileage earnings for the whole United Kingdom at various dates showed thus :—

Year	Cost, £	Passengers	Tons, Goods	Receipts, £	Expenses, £	Profit, £	Interest on Capital per Cent.
1855	35,900	15,700	...	2,590	1,240	1,350	3.7
1860	33,400	17,300	8,500	2,670	1,270	1,400	4.2
1870	34,200	23,400	10,300	2,800	1,400	1,400	4.1
1880	40,700	37,100	13,100	3,520	1,880	1,640	4.0
1888	43,600	41,200	14,200	3,680	1,910	1,770	4.1

The goods traffic returns for 1870 were lost : the above mileage is the medium between the preceding and succeeding years. The number of passengers killed or injured at various dates in the United Kingdom was as follows :—

Year	Passengers Carried	Killed or Injured	Per Million
1846 . . .	48,200,000	151	3.2
1855 . . .	130,400,000	321	2.5
1864 . . .	252,000,000	711	2.8
1873 . . .	501,000,000	1,542	3.1
1888 . . .	816,000,000	1,515	1.9

In the above table 10 per cent. for season-ticket holders is added. The number of killed or injured on railways, including servants and trespassers, is much greater than that given above, which applies only to passengers. The last four years show thus :—

Year	Killed	Injured	Total
1886 . . .	938	3,539	4,477
1887 . . .	919	3,590	4,509
1888 . . .	905	3,826	4,731
1889 . . .	1,076	4,836	5,912

The returns for 1889 were made up thus :—

	Killed	Injured	Total
Passengers . . .	183	1,829	2,012
Railway servants . .	435	2,769	3,204
Trespassers . .	351	122	473
Various . .	170	53	223
Total . .	1,139	4,773	5,912

The block system, which is considered a safeguard against collisions, is used as follows :—

	Miles	Ratio of Total
England	12,160	94 per cent.
Scotland	2,310	82 ,,
Ireland	570	21 ,,
United Kingdom .	15,040	76 ,,

The number of passengers by the several classes in the United Kingdom were as follows in 1889 :—

Class	Number	Ratio
1st	30,100,000	3.9
2nd	62,700,000	8.1
3rd	682,400,000	88.0
Total . .	775,200,000	100.0

The above, however, counts 1,271,000 season-ticket holders for only one journey each, whereas it is believed they should stand for 77,500,000, or 10 per cent. extra added to the traffic. Dividing them evenly between 1st and 2nd class (by which such subscribers usually travel) the result is as follows :—

Class	Number	Ratio
1st	69,000,000	8.1
2nd	101,500,000	11.9
3rd	682,500,000	80.0
Total . .	853,000,000	100.0

The above estimate, as already stated, allows for holders of season-tickets sixty journeys yearly, which is, doubtless, below the reality.

FRANCE

The length of lines at various dates was as follows :—

	Miles					
	1841	1850	1860	1870	1880	1888
State . .	...	...	...	...	1,400	1,550
Companies	360	1,890	5,880	9,770	14,880	19,210
Total .	360	1,890	5,880	9,770	16,280	20,760

The first line was opened to traffic in 1828, the first Government line constructed in 1878. In the following returns of traffic since 1841 the number of miles working in 1880 appears to have been less than that of lines completed.

Year	Miles	Passengers	Goods, Tons	Average per Mile	
				Passengers	Goods
1841	360	6,400,000	1,100,000	17,500	3,000
1850	1,890	18,700,000	4,300,000	9,900	2,300
1860	5,880	56,500,000	23,000,000	9,600	4,000
1870	9,770	102,600,000	37,100,000	10,500	3,800
1880	14,500	165,000,000	80,800,000	11,400	5,500
1887	19,700	218,400,000	78,100,000	11,000	4,000

The mileage statistics were as follows :—

Year	Per Mile			Pence, per Mile		Percentage of Expenses
	Earnings, £	Expenses, £	Profit, £	Passenger	Ton, Goods	
1843	1,810	970	840	1.08	1.71	53.6
1850	2,080	990	1,090	1.01	1.56	47.6
1860	2,890	1,300	1,590	0.90	1.10	45.0
1870	2,550	1,230	1,320	0.78	0.97	48.2
1880	2,830	1,410	1,420	0.80	0.95	49.8
1887	2,110	1,090	1,020	0.70	0.95	51.6

Counting the goods traffic by kilometric tons, that is, the number of tons carried one kilometer, and reducing it to English form by the number of tons carried 100 miles, we find as follows :—

Year	Millions of Kilometric Tons	Tons Carried 100 Miles
1843	59	378,000
1850	314	1,980,000
1860	3,119	19,700,000
1870	5,057	31,900,000
1880	10,350	65,200,000
1885	9,790	61,700,000

As the actual number of tons carried in 1885 was 75,200,000, it appears that the average haulage of each ton of goods was 83 miles, against 80 miles in 1880.
Passenger traffic in 1885 showed as follows :—

Class	Number	Ratio
1st	16,200,000	7.5
2nd	73,000,000	34.0
3rd	125,000,000	58.0
Total . .	214,400,000	100.0

When railways were first made, in 1845, the cost of construction averaged thus per mile :—

	£	Ratio
Land . . .	2,540	8.0
Earthworks . .	11,430	36.0
Rails, engines, cars . .	12,700	40.0
Stations, &c. . .	5,080	16.0
Total . .	31,750	100.0

Subsequently, however, the cost diminished (being the reverse of what occurred in England), and the average

on 31st December 1885 for all railways then running in France was exactly £27,000 per mile. The number of railway servants at that date was 232,000. The following table shows approximately the number of passengers and that of tons of goods carried from 1841 to 1887 :—

Period	Millions	
	Passengers	Tons
1841–49	90	18
1850–59	320	110
1860–69	810	330
1870–79	1,320	560
1880–87	1,608	650
47 years	4,148	1,668

The earnings and expenses in thirty-nine years were approximately as follows :—

Period	Earnings, Millions £	Expenses, Millions £	Profit, Millions £
1850–59 . .	97	45	52
1860–69 . .	211	98	113
1870–79 . .	327	161	166
1880–88 . .	374	194	180
39 years . .	1,009	498	511

GERMANY

The statistics for Prussia and other States show thus :—

Year	Miles Open						
	Prussia	Bavaria	Saxony	Wurtemberg	Baden	Various	Total
1840	106	42	79	...	16	98	341
1850	1,770	370	290	160	170	880	3,640
1860	3,450	1,130	470	210	220	1,500	6,980
1870	6,860	1,690	710	650	600	1,220	11,730
1880	12,640	3,000	1,300	840	820	2,090	20,690
1888	15,255	3,320	1,585	985	860	2,265	24,270

Hanoverian railways, which were included in the column "Various" down to 1860, were amalgamated with those of Prussia after the conquest in 1866. The returns for the whole German Empire show :—

Year	Miles Open	Cost, Millions £	Receipts, £	Expenses, £	Profit, £	Interest on Capital, Per Cent.
1868	10,600	169	22,300,000	11,200,000	11,100,000	6.5
1870	11,730	204	25,300,000	12,800,000	12,500,000	6.1
1880	20,690	431	43,300,000	25,200,000	18,100,000	4.2
1888	24,270	495	54,600,000	29,300,000	25,300,000	5.1

The traffic and rolling-stock are shown below, kilometric passengers and tons being reduced to English form as passengers travelling 10 miles, goods 100 miles average.

Year	Kilometric, Millions		Millions of Passengers, 10 Miles	Millions of Tons, 100 Miles	Locomotives	Cars	Waggons
	Passengers	Goods, Tons					
1868	3,213	5,042	203	32	4,640	8,920	98,440
1870	4,372	5,336	275	34	5,460	10,430	113,500
1875	5,994	10,392	378	66	9,940	17,520	206,000
1880	6,149	12,224	389	77	10,840	19,800	220,000
1887	8,385	16,516	527	104	12,750	23,440	256,000

The value of rolling-stock in 1887 was £75,800,000; it had a capacity for carrying 1,020,000 passengers, and 2,750,000 tons of merchandise.

Prussian railways showed as follows from 1844 to 1878:—

Year	Kilometric Millions		Passengers, 10 Miles	Tons, 100 Miles
	Passengers	Goods, Tons		
1844. .	130	20	8,000,000	130,000
1850. .	420	190	26,000,000	1,200,000
1860. .	870	926	55,000,000	5,830,000
1870. .	3,020	4,044	196,000,000	25,700,000
1878. .	3,740	8,033	235,000,000	50,600,000

The total carried in thirty-five years was as follows:—

Period	Kilometric Millions		Millions of Passengers, 10 Miles	Millions of Tons, 100 Miles
	Passengers	Goods, Tons		
1844–50	1,730	611	109	4
1851–60	6,100	6,297	384	40
1861–70	16,530	24,412	1,040	153
1871–78	28,710	55,767	1,810	351
35 years	53,070	87,087	3,343	548

In 1879 the following statement was published, showing the saving of freight charges and passengers fares effected by the railways of Prussia in the above period, estimating the old charges at 27 silbergroschen for a ton of goods carried 10 kilometers, and a passenger at 40 silbergroschen the same distance:—

Period	Waggon Fares, Millions £			Railway Fares, Millions £			Saving, Millions £
	Goods	Passengers	Total	Goods	Passengers	Total	
1844–50	8	5	13	3	4	7	6
1851–60	84	16	100	25	14	39	61
1861–70	326	44	370	71	31	102	268
1871–78	744	77	821	136	52	188	633
35 years	1,162	142	1,304	235	101	336	968

Traffic returns for Russia showed as follows:—

Year	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1870 . . .	7,100	14,400,000	7,700,000	...	...	...
1880 . . .	14,020	33,700,000	37,500,000	19,300,000	15,200,000	4,100,000
1887 . . .	18,380	38,200,000	50,400,000	25,300,000	14,400,000	10,900,000

	Per Mile		
	1870	1880	1887
Passengers . . .	2,030	2,400	2,080
Goods, tons . . .	1,090	2,690	2,740
Receipts, £ . . .	...	1,380	1,380
Expenses, £ . . .	...	1,090	790
Net, £	...	290	590

The total mileage in 1887 was made up thus:—

					Miles
European Russia	.	.	.	.	16,760
Finland	.	.	.	.	960
Central Asia	.	.	.	.	660
		Total	.	.	18,380

At that time (1878) the cost of construction had reached 240 millions sterling; the saving which the railways effected to the benefit of the Prussian people was therefore four times what the lines had cost to make. If it be supposed that the traffic per mile on the other German lines was the same as on the Prussian, the business of all Germany since 1844 would be approximately as follows:—

Period	Millions of Passengers, 10 Miles	Millions of Tons Goods, 100 Miles	Receipts, Millions £	Expenses, Millions £	Net Earnings, Millions £
1844–50 . .	229	9	15	...	...
1851–60 . .	776	82	80	...	...
1861–70 . .	1,890	281	186	...	...
1871–80 . .	3,720	726	398	236	162
1881–87 . .	3,220	630	341	193	148
44 years . .	9,835	1,728	1,020	...	...

The distinction between State and Companies' lines is shown as follows in English miles:—

	State		Companies		Total	
	1875	1888	1875	1888	1875	1888
Prussia . .	4,280	14,120	5,590	1,135	9,870	15,255
Bavaria . .	1,580	2,890	880	430	2,460	3,320
Saxony . .	740	1,520	360	65	1,100	1,585
Wurtemberg .	790	970	10	15	800	985
Baden . .	650	800	60	60	710	860
Hesse, &c. .	590	800	1,490	1,465	2,080	2,265
Total .	8,630	21,100	8,390	3,070	17,020	24,270

The total mileage in 1889 was 25,450, representing a cost of about 527 millions sterling. Railway employees numbered 343,000.

RUSSIA

The first line, 16 miles, was opened from St. Petersburg to Charsko-Selo in 1837, the second in 1844, the mileage increasing as follows:—

Year				Miles	Year				Miles
1840	.	.	.	16	1870	.	.	.	7,100
1850	.	.	.	310	1880	.	.	.	14,020
1860	.	.	.	990	1887	.	.	.	18,380

The respective mileages of Government lines and those belonging to companies are shown thus:—

				1870	1886
Government	.	.	.	730	2,250
Companies	.	.	.	6,370	14,000
		Total	.	7,100	16,250

All the companies' lines enjoy concessions or guarantees. The rolling-stock in 1884 comprised 5810 locomotives and 121,000 carriages and waggons. In the same year there were 420 persons killed and 654 injured, of whom passengers were 25 and 85 respectively.

AUSTRIA

Official tables give the following mileage :—

Year	Austria	Hungary	Total	State Lines	Compa-nies' Lines
1840 . .	90	...	90	...	90
1850 . .	820	140	960	640	320
1860 . .	1,810	1,000	2,810	...	2,810
1870 . .	3,790	2,160	5,950	230	5,720
1880 . .	7,080	4,420	11,500	2,240	9,260
1888 . .	9,260	6,350	15,610	7,020	8,590

In the last-mentioned year 340 miles of Bosnian lines are counted as Austrian. The traffic for the whole Empire at various dates was as follows :—

Year	Passengers	Goods, Tons	Receipts, £	Per Mile Passengers	Per Mile Tons
1863	15,000,000	...	7,400,000	4,700	...
1870	21,500,000	24,500,000	13,200,000	3,600	4,100
1880	40,500,000	54,400,000	21,100,000	3,500	4,700
1887	65,400,000	78,600,000	20,800,000	4,600	5,100

The receipts in 1889 rose to £23,300,000, being at the rate of £1500 a mile. Capital, earnings, and expenditure at various dates compare as follows :—

Year	Miles	Cost, Millions £	Per Mile, £ Cost	Earnings	Expense	Net
1870	5,950	120	20,200	2,220	1,280	940
1880	11,500	255	22,200	1,840	1,470	370
1887	15,050	298	19,800	1,390	780	610

Traffic returns on the railways of Italy at various dates compare as follows :—

Year	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1875	4,770	28,000,000	7,200,000	5,800,000	3,900,000	1,900,000
1880	5,340	32,500,000	9,300,000	7,200,000	4,300,000	2,900,000
1887	7,330	45,500,000	15,400,000	9,400,000	6,200,000	3,200,000

Averages per mile were as follows :—

Year	Construction, £	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1875	19,300	5,900	1,500	1,220	820	400
1880	19,600	6,100	1,700	1,350	800	550
1887	17,800	6,200	2,100	1,290	850	440

Returns on capital showed as follows :—

Year	Cost, Millions £	Net Earnings, £	Percentage
1875 . . .	92	1,900,000	2.1
1880 . . .	105	2,900,000	2.8
1887 . . .	122	3,200,000	2.6

Passenger and goods traffic showed the following earnings :—

Year	Pas-sengers, £	Goods, £	Pence Per Passenger	Pence Per Ton
1875 . . .	2,700,000	3,100,000	23	103
1880 . . .	3,000,000	4,200,000	22	108
1887 . . .	3,800,000	5,600,000	20	87

The net return on capital invested was as follows :—

Year	Cost, £	Net Earnings, £	Percentage
1870 . . .	120,000,000	5,600,000	4.7
1880 . . .	255,000,000	4,200,000	1.6
1887 . . .	298,000,000	9,100,000	3.1

Excluding 340 miles of Bosnian lines, the mileage in 1888 was made up thus :—

	Austria	Hungary	Total
State lines . . .	3,650	3,370	7,020
Company lines . . .	5,270	2,980	8,250
Total . .	8,920	6,350	15,270

ITALY

The official returns of mileage show thus :—

Year	Miles	Year	Miles
1840 . . .	13	1870	3,830
1850 . . .	270	1880	5,340
1860 . . .	1,120	1889	8,130

The mileage of State lines and those of companies' lines were as follows :—

	1870	1880	1887
State	500	2,380	5,030
Companies . . .	3.330	2,960	2,300
Total . .	3,830	5,340	7,330

SPAIN

In 1848 the first railway was opened from Barcelona to Mataró, 18 miles. Progress is shown as follows :—

Year	Miles	Year	Miles
1848 . . .	18	1870	3,200
1855 . . .	300	1880	4,550
1860 . . .	1,190	1888	5,920

Traffic and earnings were as follows :—

Year	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £
1873	3,310	10,800,000	3,900,000	3,530,000	...
1880	4,550	14,800,000	8,100,000	5,570,000	2,450,000

Averages per mile were as follows :—

Year	Construction, £	Passengers	Goods, Tons	Receipts, £	Expenses, £
1873	...	3,300	1,200	1,070	...
1880	15,800	3,300	1,800	1,220	540

The cost of construction down to 1880 was officially stated thus :—

State subsidies	£28,000,000
Outlay by companies . . .	44,000,000
Total . . .	£72,000,000

If the existing lines in 1888 be taken at the same mileage cost, they will represent an outlay of £98,700,000. The ratio of working expenses is the lowest in the world, only 43 per cent. of earnings. The net earnings in 1880 were about 4½ per cent. (4.4) on the cost of construction. Later information is wanting. All the lines in Spain are owned by companies.

PORTUGAL

The first line was in 1854, from Lisbon to Carregado, twenty-two miles. Official returns of mileage are as follows :—

Year				Miles	Year				Miles
1855	.	.	.	22	1875	.	.	.	640
1860	.	.	.	42	1880	.	.	.	710
1870	.	.	.	440	1888	.	.	.	1190

The official returns for 1881 and 1885 showed thus :—

Year		Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £
1881	.	760	2,200,000	740,000	750,000	310,000
1885	.	950	2,600,000	960,000	860,000	370,000

Averages per mile were as follows :—

Year		Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1881	.	2,900	970	990	410	580
1885	.	2,700	1,010	900	390	510

Traffic returns on the railways of Sweden were as follows :—

Year							Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1875	.	.	.	.	.	.	2,170	6,500,000	5,100,000	1,390,000	870,000	520,000
1880	.	.	.	.	.	.	3,650	7,000,000	5,900,000	1,800,000	1,000,000	800,000
1887	.	.	.	.	.	.	4,580	10,100,000	7,600,000	2,090,000	1,310,000	780,000

Averages per mile were as follows :—

Year	Construction, £	Passengers	Goods, Tons	Receipts, £	Expenses, £
1875	6,300	3,000	2,400	640	400
1880	6,400	1,900	1,600	500	270
1887	6,100	2,200	1,700	470	290

Mileage and traffic of Swedish railways in 1887 were made up thus :—

						Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
State	.	.	.	.	.	1,550	4,000,000	2,500,000	1,030,000	730,000	300,000
Companies	.	.	.	.	.	3,030	6,100,000	5,100,000	1,060,000	580,000	480,000
Total	.	.	.	.	.	4,580	10,100,000	7,600,000	2,090,000	1,310,000	780,000

The average percentage which net earnings gave on capital during five years ending 1886 was as follows :—

State lines 3.3
Company lines 4.1

The average cost of construction down to 1886 was £8690 per mile on Government lines and £4700 on companies' lines.

NORWAY

The first line was opened in 1855, and the miles open since have been as follows :—

Year				State	Companies	Total
1860	.	.	.	...	42	42
1870	.	.	.	182	42	224
1880	.	.	.	650	42	692
1889	.	.	.	973	42	1015

If we suppose the cost of construction (which is unknown) to have been the same as in Spain, say £15,800 per mile, the cost and net percentage on capital of Portuguese lines will have been thus :—

Year			Cost, £	Net Earnings, £	Percentage
1881	.	.	12,600,000	440,000	3.5
1885	.	.	15,800,000	490,000	3.1

The receipts in 1885 were as follows :—

				£	Average Pence
Passengers	.	.	.	360,000	34 each
Goods	.	.	.	500,000	125 per ton
Total	.	.	.	860,000	...

The average fare for each passenger and ton of goods carried is much higher than in other countries. The lines belong to companies which receive State subsidies.

SWEDEN

Official statement of mileage is as follows :—

Year				State	Companies	Total
1860	.	.	.	187	188	375
1870	.	.	.	700	390	1,090
1880	.	.	.	1,210	2,440	3,650
1888	.	.	.	1,580	3,120	4,700

Earnings showed the following returns for capital :—

Year			Cost, £	Net Receipts, £	Percentage
1875	.	.	13,800,000	520,000	3.8
1880	.	.	23,300,000	800,000	3.4
1887	.	.	27,900,000	800,000	2.8

Traffic returns in Norway showed as follows :—

Year	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1872	256	840,000	540,000	130,000	85,000	45,000
1880	690	1,650,000	600,000	240,000	180,000	60,000
1888	970	3,300,000	1,200,000	420,000	290,000	130,000

Net returns compared with cost of construction as follows :—

Year			Cost, £	Net Earnings	Percentage
1872	.	.	2,000,000	45,000	2.3
1880	.	.	4,450,000	60,000	1.4
1888	.	.	7,100,000	130,000	1.8

Averages per mile in Norway were as follows :—

Year	Construction, £	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1872	7,800	3,300	2,100	510	340	170
1880	6,400	2,400	900	340	250	90
1888	7,100	3,400	1,200	430	300	130

All are State railways except a short line of forty-two miles.

DENMARK

The number of miles open was as follows :—

Year	State	Companies	Total
1850 . . .	...	20	20
1860 . . .	...	70	70
1870 . . .	300	170	470
1880 . . .	770	210	980
1888 . . .	970	250	1,220

Traffic returns were as follows :—

Year	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1875	780	5,600,000	1,800,000	560,000	340,000	220,000
1880	830	5,900,000	2,000,000	590,000	370,000	220,000
1888	1,220	8,800,000	2,900,000	780,000	680,000	100,000

The returns of traffic are exclusive of 100 miles of company's line in Jutland. The mileage traffic on Danish railways showed thus :—

Year	Per Mile				
	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1875 . . .	7,200	2,300	720	430	290
1880 . . .	7,100	2,400	710	445	265
1888 . . .	7,900	2,700	700	600	100

In 1889 the State lines had a length of 1000 miles, having cost exactly eight millions sterling. At this rate the total outlay on the existing 1210 miles would be £9,700,000. The net earnings in 1888 being £100 per mile, would represent only 1¼ per cent. on the cost of construction, against 3.7 in 1875 and 3.3 in 1880.

HOLLAND

The first line was opened in 1839. Government lines were not begun until 1863. The mileage grew thus :—

Year	State	Companies	Total
1840 . . .	...	11	11
1850 . . .	...	110	110
1860 . . .	...	200	200
1870 . . .	500	280	780
1880 . . .	670	770	1,440
1888 . . .	930	770	1,700

Traffic returns on railways in Holland were as follows :—

Year	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1873 . . .	830	9,300,000	1,700,000	1,130,000	880,000	250,000
1880 . . .	1,440	16,000,000	4,400,000	1,860,000	930,000	930,000
1888 . . .	1,700	18,500,000	8,100,000	2,290,000	1,280,000	1,010,000

In 1888 the traffic was as follows :—

	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
State . . .	930	5,900,000	4,600,000	1,120,000	640,000	480,000
Companies' . .	770	12,600,000	3,500,000	1,170,000	640,000	530,000
Total . .	1,700	18,500,000	8,100,000	2,290,000	1,280,000	1,010,000

The averages per mile were as follows :—

Year	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1873 . . .	11,200	2,050	1,360	1,050	310
1880 . . .	11,100	3,050	1,300	650	650
1888 . . .	10,900	4,800	1,350	750	600

The return on capital was as follows in 1885 :—

	Construction, £	Net Earnings, £	Percentage
State . . .	15,900,000	390,000	2.5
Companies . .	10,400,000	520,000	5.0

In four years ending 1886 the average was 36 persons killed and 35 injured, but of passengers only 1 killed and 4 injured per annum.

BELGIUM

A line from Brussels to Malines, opened in 1835, was the first of any importance on the European Continent, although the Lyons and St. Etienne preceded it by seven years. The growth of mileage is shown as follows :—

Year	State	Companies	Total
1840 . . .	210	...	210
1850 . . .	390	160	550
1860 . . .	460	610	1,070
1870 . . .	540	1,260	1,800
1880 . . .	1,730	670	2,400
1888 . . .	1,990	770	2,760

The balance-sheet of the State lines was :—

Period	Receipts, £	Expenses, £	Profit, £
1835–60 . . .	14,700,000	8,200,000	6,500,000
1861–70 . . .	15,400,000	8,200,000	7,200,000
1871–80 . . .	35,600,000	22,300,000	13,300,000
1881–87 . . .	33,400,000	19,800,000	13,600,000
53 years . . .	99,100,000	58,500,000	40,600,000

The number of passengers on all lines carried, and that of those killed, were :—

1835–87.

Period	Number	Killed	One in
1835–50 . . .	45,000,000	15	3,000,000
1851–70 . . .	232,000,000	34	6,600,000
1871–80 . . .	405,000,000	77	6,100,000
1881–87 . . .	445,000,000	60	7,400,000

The return on capital of Belgian lines in 1888 was :—

	Cost, £	Net Product, £	Percentage
State . . .	55,300,000	2,460,000	4.5
Companies .	16,200,000	780,000	4.8
Total . .	71,500,000	3,240,000	4.6

The traffic returns on all the railways of Belgium in 1888 were as follows :—

	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
State	1,990	57,900,000	25,500,000	5,260,000	2,800,000	2,460,000
Companies . . .	770	15,500,000	15,300,000	1,520,000	740,000	780,000
Total . .	2,760	73,400,000	40,800,000	6,780,000	3,540,000	3,240,000

Averages per mile were as follows :—

	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
State . . .	29,000	12,800	2,630	1,400	1,230
Companies .	20,100	19,900	1,980	960	1,020
Total . .	26,700	14,800	2,450	1,280	1,170

The average cost of construction was £25,800 per mile, the highest ratio on the Continent except France.

SWITZERLAND

Notwithstanding the mountainous character of the country, railways are general; the mileage was :—

Year	Miles	Year	Miles
1850	15	1870 . . .	890
1855	130	1880 . . .	1,600
1860	650	1889 . . .	1,950

Traffic returns were as follows :—

Year	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £
1875	1,260	21,300,000	5,100,000	2,300,000	...
1880	1,600	21,600,000	5,800,000	2,400,000	1,260,000
1888	1,870	27,100,000	8,600,000	3,300,000	1,760,000

Averages per mile were as follows :—

Year	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1875 . .	17,100	4,100	1,840	...	...
1880 . .	13,500	3,600	1,500	790	710
1888 . .	14,500	4,600	1,780	940	840

All the lines belong to companies. The cost of construction down to the end of 1888 was £20,500 a mile.

ROUMANIA

Official statements show mileage thus :—

Year	Miles	Year	Miles
1870	150	1880 . . .	860
1875	770	1889 . . .	1,530

GREECE

As late as 1880 there were but seven miles of railways, the length in 1889 being 360 miles, besides 240 miles actually under construction.

TURKEY

All the lines belong to companies; mileage as follows :—

Year	Miles	Year	Miles
1860	40	1880 . . .	730
1870	390	1888 . . .	1,260

In 1888 there were 900 miles of rail in European, and 360 in Asiatic, Turkey.

UNITED STATES

The first line was from Boston to Quincey, four miles, opened in 1827. All the lines belong to companies, and the returns of mileage show thus :—

Year	Miles	Year	Miles
1830 . . .	23	1870 . . .	53,400
1840 . . .	2,820	1880 . . .	93,670
1850 . . .	9,020	1885 . . .	123,320
1860 . . .	30,630	1889 . . .	161,250

The distribution of mileage, according to Poor's *Manual*, at various dates, was as follows :—

States	1850	1860	1870	1880	1889
New England .	2,510	3,660	4,490	5,980	6,730
Middle	3,200	6,350	10,580	15,180	19,740
South	1,280	8,540	12,560	19,570	39,240
West	2,030	12,080	25,290	52,570	95,540
Total . .	9,020	30,630	52,920	93,300	161,250

The cost of construction per mile varied as follows :—

Year	Miles	Cost, £	Per Mile, £
1850	9,020	60,200,000	6,600
1860	30,640	239,000,000	7,800
1871	60,520	555,200,000	9,300
1881	101,730	1,274,100,000	12,500
1888	156,080	1,949,000,000	12,490

The cost of construction down to 1882 was approximately as follows, according to Census report, and in order to bring the general average up to that of Poor's *Manual*, a percentage must be added as below :—

	Census Report			Amended Average	
	Miles	Cost, £	Per Mile, £	Cost, £	Per Mile, £
New England	6,150	64,000,000	10,500	70,400,000	11,500
Middle	16,440	306,000,000	18,500	337,400,000	20,500
South	15,800	112,000,000	7,100	123,200,000	7,800
West	66,420	708,000,000	10,500	779,000,000	11,700
Total . . .	104,810	1,190,000,000	11,300	1,310,000,000	12,500

New railways had a marvellous effect in opening up the Western and some of the Southern States as follows :—

	Railways, Miles		Increase per Cent.	Farms, Acres		Increase per Cent.
	1871	1880		1871	1880	
Illinois	5,904	8,326	41	25,883,000	31,674,000	21
Ohio	3,740	6,664	78	21,713,000	24,529,000	13
Iowa	3,160	6,113	93	15,542,000	24,753,000	61
Texas	865	5,344	520	18,397,000	36,292,000	98
Indiana	3,529	4,765	36	18,120,000	31,674,000	74
Michigan	2,116	4,284	102	10,019,000	13,807,000	38
Missouri	2,580	4,211	62	21,707,000	27,879,000	27
Kansas	1,760	3,718	111	5,657,000	21,417,000	282
Wisconsin	1,725	3,442	99	11,715,000	15,353,000	31
Minnesota	1,612	3,391	110	6,484,000	13,403,000	106
Nebraska	943	2,310	146	2,074,000	9,945,000	380
Eleven States	27,934	52,568	88	157,311,000	250,726,000	60

It appears that in the above eleven States the construction of 26,600 miles of railway, at a cost of 280 millions sterling, was accompanied by a spread of farming to an extent of 93,500,000 acres; the value of the increased area amounting to 520 million dollars, or 108 millions sterling, that is, 39 per cent. of the total cost of the new railways.

The annual construction of railways has averaged :—

Period	Miles made Yearly				
	New England	Middle States	South	West	Total
1851–60 . .	115	315	726	1,005	2,161
1861–70 . .	83	423	402	1,321	2,229
1871–80 . .	149	460	701	2,728	4,038
1881–89 . .	75	456	1,967	4,297	6,795

Averages per mile, on the aggregate, of all railways in the United States were as follows :—

Year	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1872 . . .	2,300	2,500	1,260	1,030	230
1875 . . .	2,600	2,700	1,400	880	520
1882 . . .	3,300	3,200	1,410	850	560
1888 . . .	2,900	3,800	1,290	900	390

Traffic returns for the whole Union show as follows :—

Year	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £
1872	66,200	150,000,000	170,000,000	84,200,000	68,800,000
1875	74,370	191,000,000	202,000,000	104,800,000	66,100,000
1882	113,330	375,400,000	360,500,000	160,500,000	95,800,000
1888	154,280	451,400,000	589,400,000	198,000,000	138,000,000

The receipts in 1888 were as follows :—

	Amount, £	Pence per Mile
Passengers . . .	52,200,000	1.12
Goods . . .	145,800,000	0.52
Total . . .	198,000,000	...

The average for each passenger was a journey of 25 miles, for which he paid 28d., and for each ton of goods a haulage of 115 miles, for which the fare was 60d. The value of merchandise carried was estimated at 2950 millions sterling. The average price of locomotives was £1800, sleeping cars £3500. The railway of greatest passenger traffic was the New York Elevated, carrying 191 million passengers yearly. The construction of this line took 2200 tons of iron per mile, and cost £44 per yard, against £500 for the London Metropolitan.

The return on capital is shown thus :—

Year	Cost, £	Net Product, £	Percentage
1872 . .	658,300,000	15,400,000	2.3
1875 . .	920,000,000	38,700,000	4.2
1882 . .	1,436,600,000	65,300,000	4.6
1888 . .	1,949,000,000	60,000,000	3.1

The following table for 1888 shows the traffic on the lines actually working in the principal States :—

	Miles Worked	Receipts, £			Expenses, £	Cost of Construction, £	Net Product, £	Percentage
		Passengers	Goods	Total				
Illinois . .	18,055	5,200,000	15,900,000	21,100,000	14,600,000	155,000,000	6,500,000	4.2
Ohio . . .	10,345	4,100,000	13,300,000	17,400,000	12,160,000	158,300,000	5,240,000	3.3
Minnesota . .	8,863	2,060,000	6,260,000	8,320,000	5,060,000	104,000,000	3,260,000	3.1
Missouri . .	8,801	2,200,000	7,300,000	9,500,000	6,540,000	79,000,000	2,960,000	3.7
Pennsylvania .	7,532	4,900,000	21,300,000	26,200,000	15,800,000	142,500,000	10,400,000	7.3
Wisconsin . .	7,482	1,600,000	5,100,000	6,700,000	4,620,000	56,000,000	2,080,000	3.7
New York . .	7,429	4,900,000	12,300,000	17,200,000	11,940,000	178,300,000	5,260,000	2.9
Kansas . .	7,233	1,390,000	3,510,000	4,900,000	3,800,000	52,800,000	1,100,000	2.1
California . .	6,940	2,980,000	7,580,000	10,560,000	7,030,000	78,300,000	3,530,000	4.5
Indiana . .	6,116	2,060,000	5,240,000	7,300,000	5,550,000	51,200,000	1,750,000	3.4
Michigan . .	5,486	1,940,000	4,160,000	6,100,000	4,360,000	47,500,000	1,740,000	3.7
Texas . .	5,019	850,000	3,050,000	3,900,000	3,160,000	61,800,000	740,000	1.2
Various .	45,997	18,059,000	40,530,000	58,589,000	41,177,000	568,400,000	17,412,000	3.1
Total .	145,298	52,239,000	145,530,000	197,769,000	135,797,000	1,733,100,000	61,972,000	3.6

CANADA

Traffic returns were as follows :—

Year	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Miles Run
1875	4,830	5,200,000	5,700,000	4,050,000	3,280,000	17,700,000
1880	6,890	6,500,000	9,900,000	4,900,000	3,500,000	22,400,000
1889	12,630	12,200,000	17,900,000	8,430,000	6,210,000	...

The first line was opened in 1836 to Laprairie, in the province of Quebec, sixteen miles. Mileage open to traffic has been as follows :—

Year	Miles	Year	Miles
1840 . . .	16	1870 . . .	2,500
1851 . . .	71	1880 . . .	6,890
1860 . . .	2,090	1890 . . .	13,330

Averages per mile were as follows :—

Year	Passengers	Tons	Receipts, £	Expenses, £	Net, £
1875 . .	1,100	1,200	830	660	170
1880 . .	940	1,440	710	500	210
1889 . .	970	1,440	670	490	180

The mileage cost of construction and traffic of the several lines in 1887 showed as follows :—

	Miles	Cost, £	Receipts, £	Expenses, £	Net, £	Interest on Cost
Pacific	4,320	42,800,000	2,210,000	1,520,000	690,000	1.6
Grand Trunk . . .	2,600	60,300,000	3,330,000	2,290,000	1,040,000	1.7
Intercolonial . . .	900	9,200,000	540,000	580,000	...	...
Various	3,870	30,200,000	2,000,000	1,310,000	690,000	2.3
Total . . .	11,690	142,500,000	8,080,000	5,700,000	2,380,000	1.6

	Passengers	Tons	Per Mile					Miles Run
			Passengers	Tons	Receipts, £	Expenses, £	Net, £	
Pacific	1,950,000	2,120,000	450	490	510	350	160	6,900,000
Grand Trunk . . .	5,080,000	6,460,000	1,960	2,490	1,280	880	400	13,800,000
Various	3,670,000	7,820,000	750	1,620	530	390	140	12,900,000
Total . .	10,700,000	16,400,000	900	1,400	700	490	210	33,600,000

Some of the railways belong to the State, and to most of the others the Government has given subsidies. The mileage and traffic of all were made up in 1887 thus :—

	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £	Miles Run
State	1,200	1,100,000	1,200,000	580,000	600,000	...	4,800,000
Companies . . .	10,490	9,600,000	15,200,000	7,500,000	5,100,000	2,400,000	28,800,000
Total . .	11,690	10,700,000	16,400,000	8,080,000	5,700,000	2,380,000	33,600,000

The average cost of construction and earnings per train-mile run were as follows :—

	Cost, £	Cost £, per Mile	Per Train Mile, Pence		
			Receipts	Expenses	Net
Pacific . .	42,800,000	9,900	77	53	24
Grand Trunk	60,300,000	23,100	57	39	18
Various . .	39,400,000	8,200	47	35	12
Total .	142,500,000	12,200	58	41	17

The paid-up capital on all the lines in 1887 was made up as follows :—

	£
Shares	67,600,000
Debentures	40,600,000
Dominion Government . .	26,900,000
Provincial grants . . .	7,400,000
Total . .	142,500,000

Latest returns to the end of 1889 showed 13,330 miles, made at a cost of £152,100,000, say £11,400 per mile.

MEXICO

Official returns of mileage show as follows :—

Year	Miles	Year	Miles
1865 . . .	20	1880 . . .	660
1870 . . .	220	1889 . . .	5,010

In 1889 the traffic was as follows :—

	No.	Receipts, £
Passengers	12,980,000	310,000
Goods, tons	880,000	720,000
Total	...	1,030,000

There are no State railways in Mexico.

PERU

The number of miles working was as follows :—

Year	Miles	Year	Miles
1860 . . .	47	1880 . . .	1,180
1870 . . .	250	1889 . . .	1,630

In 1870-72 the Government borrowed in London 49 millions sterling, and proceeded to make railways up

the Andes. In 1877 the lines then made had cost £35,990,000, of which £25,670,000 came from the State. The Oroya line, with many tunnels, cost £29,000 per mile, say £4,200,000 ; that from Tacua to Bolivia £34,000 a mile, say £3,700,000.

CHILI

Mr. Wheelwright began railways in 1851, making a line from Copiapo to Caldera. Mileage progressed as follows :—

Year	Miles	Year	Miles
1860	120	1880	1,100
1870	450	1889	1,750

Companies own 1000 miles, the State 750, the latter having cost £6,000,000, and the total about 14 millions sterling. The earnings of State lines in 1887 amounted to £800,000, and expenses £520,000, leaving a net gain of £280,000, say 4.7 per cent. on the cost.

BRAZIL

The first line was made by Baron Manà to the Organ Mountains, near Rio Janeiro, in 1851. The progress of mileage was as follows :—

Year	Miles	Year	Miles
1860	135	1880	2,175
1870	505	1889	5,580

The Pedro Segundo is one of the finest in the New World, with a length of 520 miles, mostly through a difficult country, having sixteen great tunnels. It cost £12,200,000 and earns 5½ per cent. net on the outlay. Most of the railways are 5 feet 4 inch gauge, but there are 40-inch gauge in Rio Grande and some other parts.

The San Paulo line crosses the Serra Cubaton by four successive inclined planes, up which the train is drawn, till attaining a height of 3500 feet over sea-level. The total cost of railways down to 1888 was :—

	£	Miles	£ per Mile
State lines . . .	16,100,000	900	18,000
Companies . . .	32,700,000	4,400	7,400
Total . . .	48,800,000	5,300	9,200

Traffic returns in 1887 showed 7,300,000 passengers and 1,820,000 tons merchandise ; receipts, £3,820,000 ; expenses, £2,540,000 ; net profit, £1,280,000, being a little over 2½ per cent. (2.6) on the total outlay of capital.

ARGENTINA

The first line from Buenos Ayres to Flores, six miles, was opened in 1857. Official records of mileage show thus :—

Year	Miles	Year	Miles
1860	15	1880	1,540
1870	540	1889	5,550

The mileage at various dates was composed thus :—

	1875	1884	1886	1889
State . . .	570	1,520	1,710	...
Companies . .	600	1,520	2,070	5,550
Total . .	1,170	3,040	3,780	5,550

The total traffic returns on Argentine railways were as follows :—

Year	Miles	Cost, £	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £	Interest on Cost
1872	600	5,300,000	2,300,000	330,000	680,000	400,000	280,000	5 3
1876	1,370	11,400,000	2,700,000	680,000	920,000	630,000	290,000	2.6
1886	3,780	32,700,000	...	...	3,060,000	1,740,000	1,320,000	4.1
1888	4,440	38,500,000	...	...	2,800,000	1,650,000	1,150,000	3.0

In 1889 there were 5550 miles, representing an outlay of about 48 millions sterling. All the lines now belong to companies, the State lines having been recently sold. The number of train-miles run in 1889 was 1,200,000, the Great Southern of Buenos Ayres occupying the first place. The rolling-stock on all the lines comprised 12,000 waggons, capable of carrying 2,400,000 tons yearly.

URUGUAY

Mileage progressed as follows :—

Year	Miles	Year	Miles
1870	60	1880	270
1875	190	1889	450

Traffic returns were as follows :—

Year	Miles	Passengers	Goods, Tons	Receipts, £	Receipts per Mile, £
1877	230	270,000	77,000	95,000	410
1883	300	290,000	160,000	170,000	570
1887	400	405,000	...	...	...

The system which Mr. Robert Crawford is pushing forward will, when completed, have a total length of 700 miles. There are no State railways.

JAPAN

Mileage records are as follows :—

Year	Miles	Year	Miles
1875	40	1885	260
1880	75	1889	910

Traffic receipts in Japan were as follows :—

Year	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1886	360	4,100,000	320,000	240,000	130,000	110,000
1889	910	11,700,000	770,000	570,000	220,000	350,000

Averages per mile were as follows :—

Year	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1886	11,200	900	670	350	320
1889	12,900	850	630	240	390

Two-thirds of the lines belong to the State, one-third to companies.

INDIA

In 1853 there was but one short line of 22 miles ; at subsequent dates we find as follows :—

Year	Miles	Year	Miles
1860	840	1880	9,310
1870	4,830	1889	15,250

Traffic returns on Indian railways taking the rupee at 24 pence, were as follows :—

Year	Miles	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1874	6,190	24,300,000	4,800,000	7,790,000	3,830,000	3,960,000
1888	14,380	103,200,000	22,400,000	19,700,000	9,870,000	9,890,000

Averages per mile were as follows :—*

Year	Passengers	Tons	Receipts, £	Expenses, £	Net, £
1874 .	3,900	800	1,250	620	630
1888 .	7,100	1,510	1,400	700	700

In 1889 there were 10,410 miles of State railways, the rest belonging to companies who had guarantees or subsidies. The total cost to end of 1888 was nominally £193,200,000, taking the rupee at 24 pence, but really about 145 millions sterling.
The receipts in 1888 were made up thus :—

	No.	Receipts, £	Each, Pence
Passengers . .	103,200,000	6,440,000	15
Goods, tons . .	22,400,000	13,320,000	14
Total . . .	...	19,760,000	...

The return on capital in 1888 was over 5 per cent., viz., 5.2, being the highest average in the World for any country.

* These returns being on the fictitious basis of 24 pence the rupee, it is necessary to take off at least one-fourth ; thus mile-earnings were really £1050, expenses £525.

AUSTRALIA

The first line was opened in 1854 from Melbourne to Hobson's Bay, and the growth of mileage has been as follows :—

	1861	1871	1881	1888
New South Wales . .	73	358	1,041	2,206
Victoria	214	329	1,247	2,018
Queensland . . .	...	218	800	1,931
South Australia . .	56	134	832	1,518
New Zealand . . .	...	145	1,333	1,865
Tasmania . . .	...	45	168	327
West Australia . .	...	...	122	272
Total . . .	343	1,229	5,543	10,137

The gauge is 42 inches in all the Colonies except New South Wales, 56½, and Victoria, 63 inches.
The traffic returns in New South Wales showed thus :—

Year	Miles	Passengers	Goods, Tons	Per Mile Passengers	Per Mile Goods, Tons
1856	23	350,000	2,500	15,000	110
1888	2,206	15,900,000	3,200,000	7,300	1,450

The cost of construction down to 1888 and traffic in that year were as follows :—

	Cost, £	Cost, £ per Mile	Receipts, £	Expenses, £	Net, £	Interest on Capital
New South Wales	26,600,000	12,500	2,510,000	1,580,000	930,000	3.5
Victoria	27,500,000	13,600	2,750,000	1,750,000	1,000,000	3.6
Queensland	13,100,000	6,800	780,000	510,000	270,000	2.1
South Australia . . .	9,700,000	6,400	950,000	450,000	500,000	5.1
New Zealand	13,500,000	7,600	1,000,000	650,000	350,000	2.6
Tasmania	2,400,000	8,400	135,000	130,000	5,000	...
West Australia . . .	900,000	4,400	40,000	45,000	...	...
Total	93,700,000	9,500	8,165,000	5,115,000	3,050,000	3.2

The traffic returns for three of the Colonies in 1888 compare thus :—

	Miles	Passengers	Goods, Tons	Per Mile Passengers	Per Mile Tons	Per Mile Receipts, £	Per Mile Expenses, £
New South Wales . .	2,206	15,900,000	3,200,000	7,300	1,450	1,150	720
Victoria	2,018	56,000,000	3,560,000	27,700	1,750	1,360	865
New Zealand . . .	1,865	3,100,000	1,920,000	1,650	1,030	540	350

Mr. Coghlan shows that the saving of freight charges in New South Wales in twenty-five years down to 1888 by railways was £4,670,000. This is equal to £240 a mile per annum, and, applied to all Australia, would give the following result :—

Period	Saving in Freight Charges New South Wales	Victoria	Queensland	South Australia	New Zealand	Tasmania	Western Australia	Total
	£	£	£	£	£	£	£	£
1855–70 . . .	450,000	680,000	200,000	350,000	100,000	30,000	...	1,810,000
1871–80 . . .	1,220,000	1,390,000	850,000	800,000	1,200,000	240,000	60,000	5,760,000
1881–88 . . .	2,880,000	2,800,000	2,400,000	2,100,000	2,800,000	600,000	400,000	13,980,000
Total . .	4,550,000	4,870,000	3,450,000	3,250,000	4,100,000	870,000	460,000	21,550,000

The above estimate shows that, speaking approximately, the railways of Australia have already in saving of freight charges paid nearly one-fourth of the cost of construction; also that they cause an annual saving to the people of £1,600,000 sterling.

SOUTH AFRICA

Mileage returns show as follows :—

Year	Cape Colony	Natal	Total
1874	64	...	64
1880	910	100	1,010
1888	1,780	230	2,010

All the lines belong to the State, except one of 180 miles in Cape Colony. Cape lines in 1880 carried 2,700,000 passengers and 420,000 tons goods, being 1500 passengers and 230 tons per mile. The average cost of construction was £8900. This would give a total outlay of 16 millions sterling. Receipts £1,450,000, expenses £760,000, leaving a net profit of £690,000, say 4.3 on the cost of construction.

The first line was from Cape Town to Wellington, 58 miles, opened in 1860; cost £500,000. The line to Kimberley diamond fields was opened in 1885. In 1888 there were three principal lines: the Western 720, the Midland 590, and the Eastern 290 miles.

ALGERIA

The official returns are as follows :—

Year	Miles	Cost, £	Passengers	Goods, Tons	Receipts, £	Expenses, £	Net, £
1877	410	7,700,000	1,020,000	260,000	270,000	230,000	40,000
1885	1,160	16,000,000	2,350,000	1,080,000	850,000	605,000	245,000
1887	1,580	...	...	...	840,000	...	...

Goods tons, as given above, averaged a haulage of 100 kilometres, or 63 miles: official returns give this item under the form of kilometric tons. Including the Tunis lines, 260 miles, the whole system in 1889 reached a length of 1840 miles, representing an approximate outlay of 26 millions sterling.

EGYPT

The first line was opened in 1856, from Alexandria to Cairo, 130 miles; cost of construction, £8000 per mile. Records of mileage show thus :—

Year				Miles	Net Product, £
1860	.	.	.	275	...
1879	.	.	.	920	750,000
1885	.	.	.	950	930,000
1889	.	.	.	956	730,000

Details of receipts and expenditure showed thus :—

Year	Receipts, £	Expenses, £	Per Mile	
			Receipts, £	Expenses, £
1885	1,540,000	610,000	1,620	640
1889	1,330,000	600,000	1,400	630

In 1888 the lines carried 3,600,000 passengers. The actual length of railways is 1260 miles, but some are not working. The earnings on the total mileage would not exceed £1050, expenses £480 per mile.

Ismail Pachà, during his reign, expended a sum of £13,300,000 in the construction of railways, one line extending along the Nile valley to Siout, in Upper Egypt. Net earnings are 4 per cent. on cost.

WEST INDIES

The principal railways in this part of the world are :—

	Miles
Cuba	930
Jamaica, &c. . . .	160
Santo Domingo . . .	70
Martinique	120
	1,280

The traffic and earnings of these lines are unknown.

VARIOUS COUNTRIES

The latest returns of mileage in the following countries are :—

	Miles			Miles
Asia Minor .	360	Mauritius . .	90
Bourbon . .	70	Newfoundland .	90
Central America	570	Paraguay . .	90
Ceylon . .	180	Persia . .	10
China . .	86	Sandwich Islands	56
Cochin-China .	40	Senegal . .	250
Malta . .	10	Venezuela . .	180

Making a total of 2082 miles for which we have no traffic returns.

RANSOM

In 1360 that of King John of France was fixed at £1,200,000 sterling. In 1521 that of Francis I. of France was fixed by Charles V. the Emperor at £800,000 sterling.

RELIGION

The following are the latest numbers as well as can be ascertained :—

	Roman Catholics	Protestants	Greeks	Jews	Mahometans	Total
England	1,066,000	24,858,000	...	44,000	....	25,968,000
Scotland	318,000	3,371,000	...	6,000	....	3,695,000
Ireland	3,952,000	1,169,000	...	1,000	....	5,122,000
United Kingdom . . .	5,336,000	29,398,000	...	51,000	....	34,785,000
France	29,202,000	693,000	...	53,000	....	29,948,000
Germany	16,789,000	29,370,000	...	563,000	....	46,722,000
Russia	8,300,000	2,950,000	65,549,000	3,000,000	2,600,000	82,399,000
Austria	20,227,000	400,000	493,000	1,005,000	....	22,125,000
Hungary	9,410,000	3,174,000	2,447,000	641,000	....	15,672,000
Italy	28,360,000	62,000	...	38,000	....	28,460,000
Spain	17,542,000	7,600	...	400	....	17,550,000

	Roman Catholics	Protestants	Greeks	Jews	Mahometans	Total
Portugal	4,707,500	500	...	...	...	4,708,000
Sweden	1,000	4,561,000	...	3,000	...	4,565,000
Norway	500	1,806,500	...	...	...	1,807,000
Denmark	3,000	1,973,000	...	4,000	...	1,980,000
Holland	1,440,000	2,491,000	...	82,000	...	4,013,000
Belgium	6,016,000	10,000	...	4,000	...	6,030,000
Switzerland	1,190,000	1,724,000	...	8,000	...	2,922,000
Greece	14,000	1,000	1,903,000	6,000	24,000	1,948,000
Roumania	114,000	14,000	4,529,000	400,000	2,000	5,059,000
Servia	8,000	1,000	1,874,000	4,000	15,000	1,902,000
Bulgaria	19,000	...	2,432,000	24,000	668,000	3,143,000
Turkey	280,000	45,000	788,000	51,000	3,626,000	4,790,000
Europe	148,959,000	78,681,600	80,015,000	5,937,400	6,935,000	320,528,000
United States	9,000,000	50,890,000	...	110,000	...	60,000,000
Canada	1,792,000	2,440,000	...	...	...	4,232,000
Spanish America . . .	33,340,000	115,000	...	47,000	...	33,502,000
Australia	845,000	2,880,000	...	1,000	...	3,726,000
West Indies	2,480,000	1,030,000	...	...	...	3,510,000
Total . . .	196,416,000	136,036,600	80,015,000	6,095,400	6,935,000	425,498,000

The creeds of the world may be briefly stated thus :—

	Roman Catholics	Protestants	Greeks	Jews	Mahometans	Various	Total
Europe . . .	148,900,000	78,700,000	80,000,000	6,000,000	6,900,000	...	320,500,000
America . . .	44,100,000	55,300,000	...	100,000	...	...	91,500,000
Australia . . .	850,000	2,900,000	...	...	...	...	3,750,000
Asia and Africa . .	6,600,000	3,100,000	...	670,000	194,000,000	440,000,000	614,370,000
Total . .	200,450,000	140,000,000	80,000,000	6,770,000	200,900,000	440,000,000	1,060,120,000

The 440 millions of pagans in the above table marked "various" are made up, in almost equal proportions, of Buddhists, Brahmans, and followers of Confucius.

UNITED KINGDOM

In 1881 the classification was as follows :—

	Anglicans	Roman Catholics	Presbyterians	All Others	Total
England	18,798,000	1,066,000	114,000	5,990,000	25,968,000
Scotland	99,000	318,000	2,997,000	281,000	3,695,000
Ireland	636,000	3,952,000	486,000	48,000	5,122,000
United Kingdom	19,533,000	5,336,000	3,597,000	6,319,000	34,785,000

In 1871 the estimated numbers were :—

	Anglicans	Roman Catholics	Dissenters	Jews	Total
England	17,781,000	1,058,000	3,971,000	39,000	22,849,000
Scotland	73,000	320,000	2,959,000	6,000	3,358,000
Ireland .	683,000	4,142,000	577,000	1,000	5,403,000
U.Kingd.	18,537,000	5,520,000	7,507,000	46,000	31,610,000

No census as to religion is taken in England or Scotland. The above estimates are according to the ratios resulting from the marriages solemnised yearly in the different churches.

In 1882 a private census of people attending church on Sundays was taken, showing percentage to population as follows :—

Sheffield . . .	23	Southampton . .	38
Nottingham . .	24	Hull	41
Liverpool . . .	26	Portsmouth . .	41
Bristol . . .	31	Bath	52

The above was, however, much in excess of the real percentage, many persons going to church twice. Only 37 per cent. of the total worshippers attended the Church of England, 8 per cent. being Roman Catholics and 55 per cent. Dissenters.

UNITED STATES.

The number of churches at various dates was :—

	1830	1840	1850	1860	1870	1885
Baptist .	4,384	7,900	9,600	12,100	13,900	31,350
Methodist	...	...	13,300	19,900	21,300	29,000
Presby- } terian }	2,253	2,800	4,800	6,400	7,100	10,940
R. Catholic	210	512	1,200	2,600	3,800	6,755
Various .	3,170	3,450	9,200	13,020	17,000	30,100
Total .	...	...	38,100	54,020	63,100	108,145

The value of church property was as follows :—

	1850	1870	Number of Believers	
	£	£	1835	1880
Methodists .	3,100,000	14,600,000	1,240,000	14,667,000
Baptists . .	2,300,000	8,700,000	2,929,000	10,464,000
Presbyterians	3,100,000	11,000,000	2,102,000	6,478,000
R. Catholics	1,900,000	12,700,000	555,000	6,143,000
Various . .	7,800,000	27,200,000	7,532,000	12,407,000
Total . .	18,200,000	74,200,000	14,358,000	50,159,000

In 1888 the Roman Catholics possessed 7424 churches, 650 colleges, 3100 schools, and 520 hospitals and asylums.

2 K

The *American Almanac* gives the following statistics for 1883–85 :—

	Churches	Clergy	Sittings
Baptists	31,350	16,190	2,572,000
Episcopal Methodists	17,935	11,676	1,660,000
Other Methodists . .	...	10,770	2,050,000
Presbyterians . . .	10,940	9,050	1,020,000
Roman Catholics . .	6,755	7,370	...
Various	30,240	29,100	3,650,000
Total . . .	97,220	84,156	...

In 1883 the number of Roman Catholics was 6,832,900, but the number of sittings was not known. In 1889 Cardinal Gibbon stated their number at 9,000,000.

GERMANY
The Census of 1885 compares with 1871 as follows :—

	1871	1885
Protestants . .	25,582,000	29,370,000
Roman Catholics . .	14,868,000	16,789,000
Jews	512,000	563,000
Undefined . . .	99,000	137,000
Total . .	41,061,000	46,859,000

In 1885 the distribution was as follows :—

	Percentage				
	Prussia	Bavaria	Saxony	Wurtemberg	All Germany
Protestants .	64.4	28.1	96.6	69.1	62.7
R. Catholics	34.0	70.8	2.8	30.0	35.8
Jews . . .	1.3	1.0	0.2	0.7	1.2
Undefined .	0.3	0.1	0.4	0.2	0.3
Total .	100.0	100.0	100.0	100.0	100.0

CANADA

	Number	Ratio
Roman Catholics . .	1,792,000	42.2
Anglicans . . .	575,000	13.6
Presbyterians . . .	676,000	16.0
Methodists . . .	743,000	17.6
Various . . .	446,000	10.6
Total .	4,232,000	100.0

Roman Catholics count 1,170,000 in Lower Canada, 320,000 in Ontario, and 302,000 in the other provinces, about 1,100,000 being French and 700,000 Irish.

AUSTRALIA
In 1889 the various congregations stood as follows :—

	Anglicans	R. Catholics	Presbyterians	Methodists	Various	Total
New South Wales . .	503,000	306,000	107,000	95,000	95,000	1,106,000
Victoria . . .	399,000	261,000	170,000	139,000	135,000	1,104,000
Queensland . .	139,000	95,000	46,000	31,000	86,000	397,000
South Australia . .	85,000	48,000	20,000	59,000	103,000	315,000
New Zealand . . .	246,000	85,000	138,000	58,000	85,000	612,000
Tasmania . . .	60,000	38,000	19,000	16,000	15,000	148,000
Western Australia .	23,000	12,000	1,000	3,000	4,000	43,000
Total . .	1,455,000	845,000	501,000	401,000	523,000	3,725,000

INDIA
The Census of 1881 showed as follows :—

	Christians	Hindoos	Mahometans	Buddhists	Various	Total
Assam	7,000	3,062,000	1,317,000	6,000	489,000	4,881,000
Bengal	128,000	45,453,000	21,705,000	156,000	2,095,000	69,537,000
Bombay	145,000	17,835,000	3,774,000	...	1,642,000	23,396,000
Burmah	84,000	88,000	169,000	3,252,000	144,000	3,737,000
Madras	711,000	28,498,000	1,934,000	2,000	26,000	31,171,000
Punjaub	34,000	9,252,000	11,662,000	3,000	1,761,000	22,712,000
Travancore . . .	499,000	1,756,000	147,000	...	...	2,402,000
Various	255,000	81,993,000	9,414,000	...	4,393,000	96,055,000
Total . .	1,863,000	187,937,000	50,122,000	3,419,000	10,550,000	253,891,000

"Christians" included 963,000 Roman Catholics, 432,000 Protestants, and 568,000 Syrians, Greeks, &c.

RIBBONS
The value manufactured was estimated as follows :—

	1872	1881
	£	£
France . . .	4,920,000	5,016,000
Germany . . .	2,810,000	2,420,000
Switzerland . . .	2,590,000	2,230,000
Austria . . .	920,000	710,000
Great Britain . .	800,000	800,000
United States . .	100,000	3,430,000
Other countries . .	400,000	900,000
Total . .	12,540,000	15,506,000

RICE
The ordinary production is approximately as follows :—

	Acres	Crop, Tons	Consumption	Surplus
India . . .	22,600,000	16,800,000	15,400,000	1,400,000
Burmah . .	3,800,000	2,700,000	1,700,000	1,000,000
Japan . .	6,580,000	4,800,000	4,600,000	200,000
Manilla . .	3,140,000	1,800,000	1,750,000	50,000
Java . . .	5,000,000	3,000,000	2,500,000	500,000
Ceylon . .	600,000	400,000	350,000	50,000
Italy . . .	500,000	400,000	360,000	40,000
Spain . .	50,000	40,000	40,000	...
U. States .	120,000	90,000	160,000	...

There are also 1,870,000 acres in Cochin-China, and 500,000 in Siam under this product; no return as to crops.

The consumption in Europe has doubled since 1870, and now exceeds two million tons yearly. Consumption in the United Kingdom has been as follows:—

Year					Tons	Lbs. per Inhab.
1860	.	.	.	.	18,100	1½
1870	.	.	.	.	95,200	7
1880	.	.	.	.	221,000	14
1889	.	.	.	.	178,000	10½

It has been grown successfully in the Thames valley near Windsor.

RIVERS

The magnitude of rivers is best judged by their outflow, which is as follows:—

			Cubic Feet per Second				Cubic Feet per Second
Amazon	.	.	1,030,000	Dnieper	.	.	120,000
La Plata	.	.	850,000	Don	.	.	115,000
Mississippi	.	.	570,000	Euphrates	.	.	110,000
St. Lawrence	.	.	470,000	Rhine	.	.	65,000
Obi	.	.	330,000	Rhone	.	.	60,000
Volga	.	.	310,000	Po	.	.	60,000
Yang-tse-kiang	.	.	300,000	Vistula	.	.	45,000
Congo	.	.	250,000	Loire	.	.	35,000
Danube	.	.	250,000	Elbe	.	.	30,000
Ganges	.	.	200,000	Seine	.	.	20,000
Nile	.	.	160,000	Thames	.	.	10,000

The following table shows the length of the more important rivers:—*

			Miles				Miles
Amazon	.	.	3,270	Mississippi	.	.	2,250
Amoor	.	.	2,240	Murray	.	.	1,703
Bramaputra	.	.	1,560	Niger	.	.	2,300
Columbia	.	.	1,090	Nile	.	.	2,750
Congo	.	.	2,700	Norte	.	.	1,250
Danube	.	.	1,540	Obi	.	.	2,800
Darling	.	.	2,345	Orange	.	.	1,000
Dnieper	.	.	1,070	Orinoco	.	.	1,150
Don	.	.	985	Oxus	.	.	1,300
Douro	.	.	490	Plata	.	.	2,130
Ebro	.	.	470	Po	.	.	356
Elbe	.	.	615	Rhine	.	.	715
Euphrates	.	.	1,360	Rhone	.	.	450
Ganges	.	.	1,350	St. Lawrence	.	.	1,930
Garonne	.	.	400	Seine	.	.	429
Guadiana	.	.	320	Senegal	.	.	850
Hoang-ho	.	.	2,400	Severn	.	.	210
Hudson	.	.	280	Shannon	.	.	220
Indus	.	.	1,720	Tagus	.	.	570
Irrawaddy	.	.	500	Thames	.	.	204
Jenisei	.	.	2,100	Tiber	.	.	210
Kiang-ku	.	.	1,050	Vistula	.	.	601
Lena	.	.	2,500	Volga	.	.	1,990
Loire	.	.	549	Yang-tse-kiang	.	.	2,700
Mackenzie	.	.	1,600	Zambesi	.	.	950
Magdalena	.	.	820				

The basins drained by the great rivers are as follows:—

			Sq. Miles				Sq. Miles
Amazon	.	.	1,920,000	St. Lawrence	.	.	340,000
La Plata	.	.	1,560,000	Danube	.	.	310,000
Obi	.	.	1,370,000	Euphrates	.	.	240,000
Congo	.	.	1,300,000	Don	.	.	220,000
Mississippi	.	.	1,170,000	Dnieper	.	.	170,000
Yang-tse-kiang	.	.	740,000	Rhine	.	.	90,000
Nile	.	.	710,000	Vistula	.	.	75,000
Volga	.	.	650,000	Elbe	.	.	50,000
Ganges	.	.	440,000	Rhone	.	.	45,000

* The navigable length of rivers has been already given under the heading of *Canals*.

The outflow of European rivers is estimated as follows:—

			Cubic Feet per Second				
Into				*Into*			
North Sea	.	.	336,000	Mediterranean	.		310,000
Baltic	.	.	273,000	Caspian	.	.	365,000
Atlantic	.	.	285,000	Black Sea	.	.	603,000

Making a total of 2,172,000 cubic feet per second, or more than eight times the outflow of the Danube.

The current of certain rivers in ordinary times is as follows:—

			Feet per Minute				Feet per Minute
Seine	.	.	135	Garonne	.	.	230
Thames	.	.	180	Rhone	.	.	390
Tiber	.	.	200	Durance	.	.	510
Danube	.	.	210	Rhine	.	.	540
Loire	.	.	220	Amazon	.	.	780

The Amazon falls 2 ft., the Elbe 10 ft., the Paranà 22 ft. per 100 miles. The Danube falls 264 ft. from Vienna to Buda-Pesth, and 216 ft. from the latter place to the sea.

There have been some remarkable floods of the Seine at Paris and the Tiber at Rome, when the height over ordinary level was as follows:—

Date	River	Feet	Date	River	Feet
1658	. . Seine . .	29	1530	. . Tiber . .	45
1740	. . Seine . .	26	1686	. . Tiber . .	35
1802	. . Seine . .	24	1742	. . Tiber . .	31

The outflow of all Italian rivers is estimated thus, in cubic feet per second:—

			Cubic Feet	Basin, Sq. Miles
Po	.	.	60,000	28,000
Tiber	.	.	10,000	6,000
Other rivers	.	.	45,000	51,000
Total	.	.	115,000	85,000

The basin and outflow of French rivers are as follows:—

			Basin, Sq. Miles	Cubic Feet per Second
Rhone	.	.	48,000	60,000
Gironde	.	.	50,000	40,000
Loire	.	.	54,000	35,000
Seine	.	.	32,000	20,000
Various	.	.	15,000	40,000
Total	.		199,000	195,000

The outflow of the Nile varies from 16,000 cubic feet per second in June to 400,000 in September, the yearly average being at the rate of 160,000 cubic feet per second; Sir John Fowler makes it only 120,000. The ordinary rise of the Nile is shown in the averages for thirteen years thus:—

								Ft.	In.
1866-70	.	.	.	.	.	.	.	25	2
1871-78	.	.	.	.	.	.	.	24	0

The ordinary discharge of the Nile is sixteen times that of the Thames.

ROADS

The following is a table of resistance for waggon-draughts per ton:—

Lbs. per Ton

Description	Gradients of				
	Level Road	1 per Cent.	3 per Cent.	5 per Cent.	8 per Cent.
Pavement . . .	33	63	123	185	278
Macadam . . .	46	87	170	255	382
Stone and clay . .	65	123	245	368	552
Thick gravel . . .	147	280	550	825	1,238

M'Neill's mail-coach dynamometer is as follows :—

Speed, Miles per Hour	Force Required			
	Level Road	2½ per Cent. Gradient	4 per Cent. Gradient	5 per Cent. Gradient
	Lbs.	Lbs.	Lbs.	Lbs.
6 . .	111	160	213	268
8 . .	120	166	219	296
10 . .	128	172	225	318

There are practically three kinds of roads—ordinary highways, railways, and rivers or canals. The total length is approximately as follows :—

	Miles				Miles of Way per 100 Sq. Miles
	High-ways	Rail-ways	Rivers	Total	
U. Kingdom	118,000	19,800	3,800	141,600	120
France . .	320,000	20,900	7,700	348,600	170
Germany .	265,000	24,300	17,100	306,400	150
Russia . .	65,000	17,700	33,900	116,600	5
Austria . .	81,000	15,600	7,200	103,800	37
Italy . . .	51,000	7,800	1,300	60,100	54
Spain. . .	14,000	5,900	1,100	21,000	11
Portugal .	2,000	1,200	500	3,700	10
Sweden . .	36,200	4,700	500	41,400	24
Norway . .	14,800	1,000	100	15,000	12
Denmark .	2,000	1,200	100	3,300	22
Holland. .	7,600	1,700	2,700	12,000	60
Belgium. .	5,700	2,800	1,200	9,700	85
Switzerland	...	1,900	500	2,400	16
Roumania, &c. .	...	3,600	1,100	4,700	3
Europe . .	982,300	130,100	78,800	1,191,200	35
U. States .	260,100	161,200	51,800	473,100	15
Canada . .	6,000	13,300	4,000	23,300	1
India. . .	58,000	15,300	5,000	78,300	6
Australia .	...	10,600	3,800	14,400	1
Argentina .	...	5,600	2,200	7,800	1
Brazil . .	700	5,600	24,300	30,700	1
Total .	1,307,100	341,600	169,900	1,818,700	10

In Switzerland, lake routes are counted as navigable rivers. The term "highways" includes also byways practicable for wheeled vehicles. The ordinary cost of making a road is £800 a mile in England, £1200 in France, £600 in Italy. The cost of maintenance is £18 a mile in England, £33 in France, £38 in Austria. Macadamised roads are called after a Scotch engineer who began his labours in 1818.

UNITED KINGDOM

The mileage of roads in England and Wales increased until the introduction of railways, and then began to decline, viz. :—

Year	Miles		
	Main	Ordinary	Total
1813 . . .	19,700	95,100	114,800
1839 . . .	21,960	104,770	126,730
1870 . . .	15,125	102,615	117,740
1889 . . .	17,745	93,115	110,860

Expenditure in 1889 was as follows :—

	£	Average per Mile, £
Main	802,000	45
Ordinary . . .	1,222,000	13
Total . .	2,024,000	18

The Romans had roads from Brighton to York ; these were repaired by Edward I. and subsequent monarchs. In the 18th century Arthur Young wrote of the turnpike road from Preston to Wigan : "This infernal road has ruts four feet deep ; in 18 miles I counted three carts broken down." Scotland had no regular roads, at least in the northern parts, before 1745, when General Wade's soldiers made them. Telford resumed the work in 1800, and made 900 miles of road and 1200 bridges in twenty years. In 1887 Scotland had 2530 miles of main and ordinary highways. As for Ireland, it was customary in the 18th century to travel on horseback, Colonel Knox Gore stating recently in the House of Commons that he was the first man who travelled by coach from Connaught to Dublin.

FRANCE

Expenditure in 1885 was as follows :—

Roads	Miles	£	£ per Mile
National . . .	23,700	1,280,000	54
Departmental . .	18,900	880,000	47
Local . . .	277,400	8,360,000	30
Total . .	320,000	10,520,000	33

In 1835 the mileage and value of routes was as follows :—

	Miles	£	£ per Mile
Canals . . .	2,300	18,000,000	7,800
Highroads . . .	21,500	21,000,000	9,800
Byroads . . .	24,000	15,000,000	6,200
Bridges, No. . .	1,750	7,000,000	...
Total value .	...	61,000,000	...

There are four classes of roads in France, viz. :—

Class	Width, Feet	Cost, £ per Mile
1st	50	1,900
2nd	40	1,200
3rd	33	800
4th	25	400

In fifty years ending 1880 France spent 180 millions sterling on highroads ; those now existing are worth about 240 millions sterling.

GERMANY

The main roads of the Empire in 1878 were as follows :—

	Miles
Prussia	25,300
Bavaria	6,200
Other States	33,700
Total	65,200

There were also 200,000 miles of byroads.

AUSTRIA

After the peace of 1815 the Government began to make roads, and in sixty years, down to 1875, no less than 60,000 miles of macadamised roads were laid down, besides sixty passes made over the Alps, with casemates for travellers. The grand trunk road from Verona (then Austrian Italy) to Bukowina was 1000 miles in length. Road-making is still carried on at the rate of 1000 miles yearly.

The returns of Austria proper, without Hungary, show as follows :—

	Mileage	
	1878	**1887**
Highroads . . .	9 700	9,800
Byroads	42,300	52,300
Total . .	52,000	62,100

Highroads are kept in repair by the State at a cost of £38 per mile per annum, byroads by the local communes. Hungary had 18,800 miles of road in 1886, of which 4,400 were maintained by the State, and 14,400 of minor importance by the communes.

ITALY

In the last thirty years no less than 28,000 miles of road have been constructed, at an outlay of 17 millions sterling, being an average of £600 per mile. There are at present 5800 miles of main routes maintained by the State, and 45,000 of local roads by the communes.

SPAIN

The length of highroads at various dates was :—

Year			Miles	Year			Miles
1808 .	.	.	1,860	1869 .	.	.	9,980
1827 .	.	.	3,300	1880 .	.	.	13,970

In 1827 waggons paid a toll of twopence every 10 miles, and the State expended £91,000 on the maintenance of 3300 miles and thirty-five bridges. The rest of Spain had only mule-tracks. When Church properties were confiscated, a part of the spoil was devoted to making roads, and in this way £7,000,000 were expended between 1846 and 1858. In 1880 there were 12,420 miles of good carriage roads maintained by the State, and 1550 by the local authorities.

PORTUGAL

In 1840 there were neither roads nor mail-coaches ; men travelled on mules, ladies in sedan-chairs borne by hand. At present there are about 2000 miles of road, including the great northern route, 300 miles, to Valenza on the Minho, and the great eastern to Badajoz.

BELGIUM

The mileage of roads has nearly trebled since 1830 :—

Year	Highroads	Byroads	Total
1830	1,620	430	2 050
1850	2,550	1,360	3,910
1870	3,360	1,280	4,640
1887	4.350	1,350	5,700

SALT

The following table shows the percentage of salt in various seas :—

Sea	Percentage of Salt	Salt per Ton of Water, lbs.
Caspian	0.5	11
Black	1.2	26
Baltic	1.3	28
English Channel . .	3 3	72
Red	4.3	· 93
Dead	8.5	187
Mediterranean . . .	3.9	85
Atlantic	3.7	81
Salt Lake	20.0	440

In 1879 the waggons used on the above roads had a carrying power of 470,000 tons.

UNITED STATES

The length of mail-coach roads at various dates was :—

Year						Miles
1800						20,820
1850	.	.	.	.	.	169,700
1889	.	.	.	.	.	260,100

At the period of independence there were not 1000 miles of highroad, the colonies of New England, Virginia, &c., having little other means of communication than by sea.

In 1834 the mail-coach roads of the principal States were as follows :—

	Miles		Miles
New York . .	12,300	North Carolina .	6,500
Pennsylvania .	9,800	Kentucky . .	5,600
Virginia .	9,500	Tennessee . .	5,500
Ohio . . .	8,100	Vermont . .	4,700

The other States having an aggregate of 42,500 miles, and thus making up a total of 104,500 for the Union.

CANADA

In 1826 there was such a want of roads that Major Strickland described a journey of fifty miles near Toronto, which took him three days to accomplish. In 1878 there were 5500 miles of regular mail-coach road.

BRAZIL

The interior is still destitute of good roads, but there are some admirable ones in the Maritime provinces. Those of Tijuca and Petropolis, near Rio Janeiro, are *chefs d'œuvre*, besides which those in the provinces of San Paulo and Rio Grande are worth mention. Waggon-tracks from Rio Janeiro to Matto Grosso and Goyaz, are in use for freight, the journey taking six months.

ARGENTINA

Except the routes over the Andes to Chili, roads are almost unknown. President Sarmiento bridged many of the rivers in 1868–74. Railways have meantime rendered roads superfluous. In 1860 the bullock-waggons between Tucuman and Rosario, 600 miles, usually took twelve months on the round trip, going ten miles a day, and making long halts. The distance is now done in one day by rail.

S.

In the Dead Sea the percentage of salt increases with depth, viz. :—

Depth, Feet					Salt	Water
1 .	.	.	.	.	93	907
66 .	.	.	.	.	204	796
400 .	.	.	.	.	263	737
1,000 .	.	.	.	.	278	722

The production of salt in Europe and the United States has been approximately as follows, in tons :—

	1830	1889
Great Britain . .	400.000	1,900,000
Continent . . .	1,700,000	4,350,000
United States . .	100,000	1,050,000
Total .	2,200,000	7,300,000

The following table shows approximately the present production and consumption yearly :—

	Tons		Lbs. Consumed per Inhabitant
	Production	Consumption	
United Kingdom .	1,950,000	1,050,000	62
France . . .	640,000	640,000	36
Germany . . .	910,000	755,000	35
Russia . . .	1,200,000	1,310,000	33
Austria . . .	340,000	340,000	18
Italy	600,000	350,000	25
Spain and Portugal .	600,000	190,000	19
Scandinavia . .	...	190,000	44
United States .	1,050,000	1,360,000	48
Canada . . .	55,000	105,000	45
India	700,000	1,100,000	12
Various . . .	755,000	1,130,000	...
Total . .	8,800,000	8,520,000	...

Whenever the consumption falls below 20 lbs. per inhabitant, it is bad for public health. During the Paraguayan War of 1864-70, it was observed that the men who had been without salt for three months, when wounded, however slightly, died, as their wounds would not heal.

UNITED KINGDOM

Period	Average Production, Tons per Annum	Duty per Ton	Price per Ton	Lbs. Consumed per Inhabitant
1800-06 . .	203,000	£30	£32	16
1807-15 . .	230,000	30	32	16
1816-23 . .	257,000	30	32	16
1824-40 . .	410,000	...	1	19
1841-60 . .	880,000	...	16s.	32
1861-70 . .	1,540,000	...	14s.	58
1871-80 . .	2,020,000	...	12s.	72

The consumption in the United Kingdom averages 40 lbs. per inhabitant for cooking or condiment, the rest being used for chemicals, manure, &c. Reduced death-rate and higher efficiency of workmen are in some manner the result of increased consumption of salt.

The exportation at various dates has been as follows :—

Year	Tons	Value, £	Shillings per Ton
1830 . . .	220,000	...	...
1853 . . .	520,000	270,000	10.4
1860 . . .	700,000	360,000	10 3
1870 . . .	760,000	380,000	10.0
1880 . . .	1,050,000	600,000	11.4
1888 . . .	900,000	490,000	10.9

The number of saltpans in the United Kingdom rose from 752 in 1867 to 1311 in 1876, the production in the latter year including 1,780,000 tons of white salt made from brine, and 190,000 of rock-salt from Cheshire and Carrickfergus.

FRANCE

Production at various dates was approximately as follows :—

Year	Tons	Lbs. per Inhabitant
1830	300,000	20
1840	400,000	25
1850	600,000	36
1868	600,000	34
1886	640,000	36

The quantity made in 1886 was officially valued at £480,000, say 15 shillings a ton. The surplus for exportation is insignificant. The saltworks employ 4000 hands. The amount of salt which paid excise in 1885

was only 330,000 tons, being for cookery and table use ; what is used in manufactures is untaxed.

GERMANY

Official returns show as follows :—

Year	Tons		
	Production	Export	Consumption
1870 . .	430,000	40,000	390,000
1880 . .	660,000	100,000	560,000
1887 . .	910,000	155,000	755,000

Consumption compared with population showed :—

Year	Lbs. per Inhabitant		
	Table Use	Manufactures	Total
1870	17	8	25
1880	17	13	30
1887	17	18	35

In 1887 Prussia produced 470,000 tons, Wurtemberg 180,000, and the other states 260,000 tons.

RUSSIA

Production and consumption at various dates were :—

Year	Tons			Lbs. per Inhabitant
	Production	Imports	Consumption	
1840 .	440,000	...	440,000	18
1860 .	420,000	150,000	570,000	20
1870 .	450,000	180,000	630,000	20
1880 .	780,000	150,000	930,000	24
1888 .	1,200,000	110,000	1,310,000	33

AUSTRIA

The salt-mine of Wieliezka in Galitzia, at the base of the Carpathians, is the greatest in the world, extending 600 miles, and seeming inexhaustible. For six centuries it has given prodigious quantities of salt, and it still occupies 9000 miners. The total tonnage production of the Empire for the years given was estimated thus :—

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1834 . . . . . . . . .   260,000
1850 . . . . . . . . .   600,000
1887 . . . . . . . . .   340,000
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If the estimate in 1850 was correct, this shows that the industry is declining apace, perhaps owing to the heavy salt-tax, the Government selling it at £1 per ton for exportation, but at £10 per ton for home use.

HOLLAND

In 1880-83 the average consumption was as follows :—

		Tons
For food		39,000
Manufactures		19,000
Total		58,000

The consumption for food averaged 20 lbs. per head. The salt-tax yields £300,000 per annum, say 18 pence per inhabitant.

SPAIN AND PORTUGAL

In 1850 Spain was estimated to produce 800,000 ; Portugal, 520,000 tons. An official report in 1863 gave the production in Spain as 3,800,000 tons, probably ten times the real quantity. Exports were as follows :—

Year	Tons			Total Value, £
	Spain	Portugal	Total	
1872 . . .	220,000	180,000	400,000	410,000
1880 . . .	320,000	190,000	510,000	320,000
1888 . . .	240,000	170,000	410,000	200,000

The production of the two countries is not thought to exceed 600,000 tons.

SCANDINAVIA

Imports of salt were as follows :—

Year	Tons			
	Sweden	Norway	Denmark	Total
1860 . . .	40,000	65,000	10,000	115,000
1870 . . .	60,000	100,000	20,000	180,000
1880 . . .	60,000	70,000	20,000	150,000
1888 . . .	70,000	90,000	30,000	190,000

The large consumption in Norway is explained by the fisheries.

UNITED STATES

Production and consumption at various dates were :—

Year	Tons			Lbs. per Inhabitant
	Production	Imports	Consumption	
1840	150,000	...	...	...
1870	400,000	...	...	...
1880	670,000	430,000	1,100,000	48
1888	1,050,000	310,000	1,360,000	48

Saltworks were established at Cape Charles, Virginia, in 1620, and the French began working salt-springs in Illinois in 1720. The principal works in 1850 were at Syracuse, New York, producing 250,000 tons yearly. The method of solar evaporation is by tanks six inches deep, with an area of 300 square feet, each tank producing one ton per annum, worth 8s. Boiling is also practised at Syracuse in kettles of 100 gallons ; the consumption of coal b..ing one ton for each ton of salt. The production in 1870 and 1880 was as follows :—

	Saltworks		Tons Produced	
	1870	1880	1870	1880
Michigan . . .	65	86	90,000	280,000
New York . .	93	69	110,000	200,000
Virginia . . .	29	11	100,000	70,000
Ohio	40	25	65,000	60,000
Various . . .	55	73	35,000	60,000
Total . .	282	264	400,000	670,000

CANADA

The importation has been as follows :—

Year	Tons	Value, £
1874	60,000	90,000
1887	50,000	65,000

Salt-springs were discovered at Goderich, Ontario, in 1865, and a bore of 960 feet was sunk in 1876. The production in 1886 was 55,000 tons, valued at £45,000. The consumption is, therefore, 105,000 tons, equal to 45 lbs. per inhabitant yearly.

INDIA

About 500,000 tons are made yearly, besides which the importation has been as follows :—

Year	Tons	Value, £
1873	280,000	830,000
1880	350,000	760,000
1888	430,000	800,000

The salt-tax is enormous, and weighs heavily on the ryots. In 1876 it was six millions sterling, rising in 1890 to eight millions sterling. Consumption of salt barely averages 10 lbs. per inhabitant, which tends still further to debilitate the inhabitants.

SANITATION

In 1880 the amount of outstanding loans in Great Britain for sanitary works, such as water-supply, drainage, &c., exceeded 56 millions sterling. In 1888 it was stated that the total outlay on these works in the last thirty years reached 100 millions sterling. The following table of sewage was published in 1882 :—

	Sewers, Cost per Mile	Tons of Sewage discharged Weekly
Manchester . .	£1,240	770,000
Preston . . .	2,000	140,000
London . . .	5,550	5,500,000
Blackburn . .	4,700	150,000

The system of sewage-farms requires an acre for 500 inhabitants, say 1000 acres for a city like Manchester or Liverpool. Sewage is supposed to have a market value of 1d. per ton. In 1876 there were 65 towns in England with sewage-farms.

The length of drains or sewers in various cities in 1882 was as follows :—

	Miles			Miles
London . . .	2300	Bordeaux . . .	34
Paris . . .	440	Lille . . .	33
New York . .	200	Rheims . . .	14

The Romans understood the importance of sewers, and in the year 184 B.C. we find that the Senate spent 1000 talents, say £120,000 sterling, on enlarging the drains. Paris under Louis XIV. had nearly two miles of sewers, and under Bonaparte about sixteen miles. Dry refuse in English towns, which is thrown into dust-bins, is found to average 10 lbs. a week per inhabitant. The result of sanitation is shown in the reduced death-rate, by comparing the average for seven years before and seven years after the introduction of water-supply and drainage, viz. :—

	Deaths per 10,000 Pop.		Deaths from Typhoid	
	Before	After	Before	After
Cardiff . .	330	230	17	11
Croydon . .	240	190	15	5
Dover . .	230	210	14	9
Leicester .	260	250	15	8
Merthyr . .	260	180	21	9
Salisbury .	280	220	..	...
Warwick .	230	210	19	9

Deaths from typhoid in various towns showed a similar decline, both here and on the Continent, after the introduction of sanitary works :—

	Per 100,000 Inhabitants	
	Before	After
Brussels	22	15
Hamburg	48	22
Dantzig	99	27
Frankfort	63	24
Bristol	100	65
Cheltenham	80	47

Buchanan shows that the annual death-rate for twenty-four towns in England fell from 24.7 per thousand inhabitants to 21.9 after the adoption of water-supply and sewers.

SCIENCE

The learned societies of the United Kingdom in 1880 were 118 in number and counted 66,200 members ; but as many of these were repetitions, it is not likely that the cultivators of science were more than 44,000. The aggregate of 15 principal societies at various dates was :—

Year						Members
1830	.	.	.	.	.	2,201
1850	.	.	.	.	.	15,769
1880	.	.	.	.	.	29,061

In 1882 the principal societies showed as follows :—

Royal	.	.	552	Pharmaceutical .	3,250
Statistical	.	.	807	Law . .	1,530
Archæological .	.	580	Arts. . .	3,340
Geological	.	.	850	Agricultural .	7,950
Antiquaries	.	.	640	Zoological . .	2,000
Geographical	.	3,430	British Association .	2,400
Botanical.	.	.	1,660	Social Science .	1,550

In 1881 the United Kingdom had 1355 schools of science, with 66,600 pupils ; annual cost £295,000, or 89 shillings per pupil. In the same year the number of visitors to the different museums was as follows :—

British Museum .	790,000	National Gallery	958,000
South Kensington	1,017,000	Kew Gardens .	612,000
Bethnal Green .	451,000	Edinburgh . .	350,000
Patent Office .	266,000	Dublin . .	192,000

SEAMEN

The number of seafaring men in all countries was in 1882 as follows :—

	Navy	Merchant	Coast, Fishing	Total	Ratio to Population, per Cent.
U. Kingdom	45,000	193,000	167,000	405,000	1.11
France . .	43,000	35,000	94,000	172,000	0.45
Germany. .	8,000	40,000	27,000	75,000	0.16
Russia . .	26,000	23,000	74,000	123,000	0.15
Austria . .	10,000	7,000	9,000	26,000	0.07
Italy . . .	15,000	52,000	74,000	141,000	0.50
Spain . . .	7,000	23,000	44,000	74,000	0.45
Portugal . .	4,000	5,000	4,000	13,000	0.30
Holland . .	7,000	18,000	13,000	38,000	0.95
Denmark. .	1,000	7,000	5,000	13,000	0.70
Sweden and Norway	9,000	79,000	143,000	231,000	3.55
Greece . .	1,000	11,000	15,000	27,000	1.52
Turkey . .	4,000	10,000	3,000	17,000	0.22
Europe . .	180,000	503,000	672,000	1,355,000	0.42
United States	8,000	120,000	54,000	182,000	0.35
Canada . .	...	50,000	65,000	115,000	2.54
Brazil . . .	2,000	6,000	8,000	16,000	0.18
Argentine Republic	1,000	2,000	8,000	11,000	0.55
Australia . .	...	11,000	3,000	14,000	0.48
Total . .	191,000	692,000	810,000	1,693,000	0.45

If marines and coastguards were added, the total would fall little short of two millions of men, or nearly 3 per cent. of the able-bodied men of the Christian world.

SEASONS

For medical purposes the seasons are supposed to begin on the following dates :—

	Northern Hemisphere	Southern Hemisphere
Spring . . .	March 1st	September 1st
Summer . .	June 1st	December 1st
Autumn . .	September 1st	March 1st
Winter . .	December 1st	June 1st

The mean temperature of the seasons in various countries is as follows, in degrees Fahrenheit :—

			Spring	Summer	Autumn	Winter
England .	.	.	47	61	51	40
France .	.	.	54	68	56	41
Germany .	.	.	48	65	48	33
Italy .	.	.	59	75	61	45
Spain .	.	.	61	79	67	51
Canada .	.	.	43	71	47	17
Jamaica .	.	.	77	81	79	76
New South Wales	.		63	70	64	54
Cape Colony .	.		61	69	63	56
Brazil .	.	.	73	79	75	69

SERVANTS

Of 1000 families at Berlin there were 194 which kept servants in 1864, and only 173 in 1871. Professor Leone Levi in 1883 computed 1,951,000 domestic servants in the United Kingdom, earning £68,500,000 per annum, say £35 each.

SHIPPING

The following is Mr. Kiaer's table of the shipping of the world, with a column added for carrying power, in which steamers are counted as four times the power of sailing-vessels :—

Year	Steam, Tons	Sail, Tons	Total, Tons	Carrying Power
1816 . .	1,500	3,420,000	3,421,500	3,426,000
1820 . .	6,200	3,160,000	3,166,200	3,185,000
1830 . .	30,200	3,020,000	3,050,200	3,140,000
1840 . .	97,000	4,560,000	4,657,000	4,950,000
1850 . .	217,000	6,380,000	6,597,000	7,250,000
1860 . .	764,000	10,710,000	11,474,000	13,770,000
1870 . .	1,710,000	12,350,000	14,060,000	19,190,000
1880 . .	4,650,000	13,270,000	17,920,000	31,870,000
1886 . .	7,400,000	12,000,000	19,400,000	41,600,000

Mr. Kiaer's figures doubtless apply only to vessels of "*long cours*," as they are less than the total shipping. For example, Lloyd's list in 1842 shows for Europe only, no fewer than 88,100 vessels of 6,547,000 tons.

The following is an approximate table of shipping at various dates, the British flag including colonial vessels :—

					1800	1820	1842	1860	1888
British	.	.	.	.	1,856,000	2,654,000	3,311,000	5,713,000	9,050,000
French	.	.	.	.	250,000	350,000	634,000	930,000	960,000
German	.	.	.	.	150,000	250,000	550,000	700,000	1,230,000
American	.	.	.	.	970,000	1,280,000	2,180,000	5,350,000	4,310,000
Various	.	.	.	.	800,000	1,300,000	2,705,000	3,777,000	6,100,000
	Total	.	.		4,026,000	5,834,000	9,380,000	16,470,000	21,650,000

The nominal tonnage of the various flags was approximately as follows (see *Lloyd's List for* 1842):—

	1842	1860	1888		
	All Vessels	All Vessels	Steam	Sail	Total
United Kingdom	2,570,000	4,660,000	4,350,000	3,115,000	7,465,000
Colonies	741,000	1,053,000	265,000	1,320,000	1,585,000
British	3,311,000	5,713,000	4,615,000	4,435,000	9,050,000
French	634,000	1,010,000	510,000	450,000	960,000
German	550,000	700,000	500,000	730,000	1,230,000
Russian	240,000	400,000	140,000	610,000	750,000
Austrian	210,000	250,000	90,000	130,000	220,000
Italian	460,000	550,000	175,000	675,000	850,000
Spanish	280,000	470,000	395,000	205,000	600,000
Portuguese	80,000	90,000	15,000	63,000	78,000
Scandinavian	620,000	970,000	355,000	1,950,000	2,305,000
Dutch	270,000	300,000	105,000	140,000	245,000
Belgium	30,000	30,000	73,000	4,000	77,000
Turkish	182,000	180,000	64,000	153,000	217,000
Greek	186,000	200,000	31,000	227,000	258,000
United States	2,180,000	5,350,000	1,770,000	2,540,000	4,310,000
Various	147,000	387,000	202,000	330,000	532,000
Total	9,380,000	16,600,000	9,040,000	12,642,000	21,682,000

The carrying power of the principal flags in 1888 was as follows:—

Flag	Carrying Power, Tons			Number of Vessels	Carrying Power per Vessel
	Steam	Sail	Total		
U. Kingdom	17,400,000	3,115,000	20,515,000	21,896	930
Colonies	1,060,000	1,320,000	2,380,000	6,010	400
British	18,460,000	4,435,000	22,895,000	27,906	820
French	2,040,000	450,000	2,490,000	15,278	165
German	2,000,000	730,000	2,730,000	3,635	750
Russian	560,000	610,000	1,170,000	4,406	270
Austrian	360,000	130,000	490,000	367	1,320
Italian	700,000	675,000	1,375,000	6,810	200
Spanish	1,580,000	205,000	1,785,000	1,698	1,050
Portuguese	60,000	63,000	123,000	443	270
Swedish	500,000	375,000	875,000	3,844	230
Norwegian	540,000	1,400,000	1,940,000	7,233	270
Danish	380,000	175,000	555,000	3,344	165
Dutch	420,000	140,000	560,000	609	920
Belgian	290,000	4,000	294,000	59	5,000
Turkish	260,000	153,000	413,000	875	480
Greek	120,000	227,000	347,000	5,157	65
U. States	7,080,000	2,540,000	9,620,000	22,623	425
Chili	80,000	58,000	138,000	166	820
Japan	290,000	60,000	350,000	1,284	270
Brazil	240,000	70,000	310,000	495	630
China *	100,000	10,000	110,000	135	810
Various	100,000	132,000	232,000	770	300
The World	36,160,000	12,642,000	48,802,000	107,137	453

* Exclusive of junks and canal-boats.

Mr. Kiaer's table of vessels over 100 tons, in 1881, was as follows:—

Flag of	Number			Total Tonnage
	Steamers	Sailing	Total	
Great Britain	2,869	11,893	14,762	7,010,000
France	335	2,772	3,107	840,000
Germany	277	3,113	3,390	1,150,000
United States	548	5,958	6,506	2,370,000
Norway	148	4,160	4,308	1,460,000
Sweden	258	1,979	2,237	470,000
Denmark	109	1,172	1,281	230,000
Italy	103	2,936	3,039	1,070,000
Spain	226	1,578	1,804	450,000
Holland	111	1,112	1,223	420,000
Greece	20	1,672	1,692	330,000
Canada	918	6,459	7,377	1,140,000
Various	470	3,780	4,250	1,385,000
The World	6,392	48,584	54,976	18,325,000

It would appear, therefore, that the whole shipping of the world may be summed up as follows, for 1888:—

	Number	Tons Register	Carrying Power	Carrying Power per Vessel
Steamers	19,740	9,040,000	36,160,000	1,820
Sailing-vessels	25,197	11,510,000	11,510,000	460
Small craft	62,200	1,132,000	1,132,000	18
Total	107,137	21,682,000	48,802,000	453

Hence it may be said that, excluding 62,200 small craft, the commerce of the world is carried on by 45,000 vessels, of 20,500,000 tons register, with a carrying power of 48 million tons.

The relative amounts of carrying power that corresponded to steam and sail at various dates were as follows:—

Year	Nominal Tonnage			Carrying Power			Percentage	
	Steam	Sail	Total	Steam	Sail	Total	Steam	Sail
1820	20,000	5,814,000	5,834,000	80,000	5,814,000	5,894,000	1.4	98.6
1840	368,000	9,012,000	9,380,000	1,470,000	9,012,000	10,482,000	14.0	86.0
1860	1,710,000	14,890,000	16,600,000	6,840,000	14,890,000	21,730,000	31.5	68.5
1870	3,040,000	12,900,000	15,940,000	12,200,000	12,900,000	25,100,000	48.8	51.2
1880	5,880,000	14,400,000	20,280,000	23,500,000	14,400,000	37,900,000	61.5	38.5
1888	9,040,000	12,640,000	21,680,000	36,160,000	12,640,000	48,800,000	74.0	26.0

The following table shows approximately the merchant steam-navies of the world at various dates :—

						Nominal Tonnage of Steamers					
						1840	1850	1860	1870	1880	1888
British	.	.	.	.	.	95,000	188,000	502,000	1,203,000	3,105,000	4,355,000
American	.	.	.	.	.	198,000	481,000	870,000	1,075,000	1,211,000	1,765,000
French	.	.	.	.	.	10,000	27,000	84,000	170,000	278,000	510,000
German	.	.	.	.	.	10,000	20,000	50,000	82,000	216,000	503,000
Russian	.	.	.	.	.	10,000	20,000	40,000	70,000	100 000	142,000
Austrian	.	.	.	.	.	10,000	20,000	30,000	50,000	60,000	90,000
Italian	.	.	.	.	.	10,000	15,000	20,000	35,000	77,000	175,000
Spanish	.	.	.	.	.	5,000	10,000	13,000	45,000	230,000	395,000
Scandinavian	.	.	.	.	.	5,000	10,000	25,000	88,000	190,000	355,000
Dutch	.	.	.	.	.	5,000	10,000	20,000	30,000	65,000	105,000
Various	.	.	.	.	.	10,000	20,000	60,000	190,000	350,000	645,000
Total	.	.				368,000	821,000	1,714,000	3,038,000	5,882,000	9,040,000

The carrying power of the principal flags at various dates was approximately as follows :—

Flag				Tons				
				1820	1840	1860	1880	1888
United Kingdom	.	.	.	2,440,000	2,840,000	6,025,000	14,750,000	20,515,000
Colonies	.	.	.	210,000	756,000	1,194,000	2,060,000	2,380,000
British	.	.	.	2,650,000	3,596,000	7,219,000	16,810,000	22,895,000
American	.	.	.	1,340,000	2,780,000	7,960,000	7,700,000	9,620,000
French	.	.	.	450,000	664,000	1,265,000	1,753,000	2,491,000
German	.	.	.	300,000	580,000	850,000	1,830,000	2,743,000
Russian	.	.	.	150,000	270,000	520,000	1,040,000	1,170,000
Spanish	.	.	.	120,000	295,000	510,000	1,250,000	1,785,000
Italian	.	.	.	200,000	490,000	610,000	1,230,000	1,375,000
Norwegian	.	.	.	110,000	260,000	850,000	1,690,000	1,940,000
Dutch	.	.	.	140,000	275,000	400,000	525,000	560,000
Various	.	.	.	434,000	1,272,000	1,546,000	4,072,000	4,221,000
Total	.	.	.	5,894,000	10,482,000	21,730,000	37,900,000	48,800,000

The increase of nominal tonnage and of effective carrying power in various periods was approximately as follows :—

	Annual Average of Increase			
	Tons Register		Tons Carrying Power	
	1841-60	1861-88	1841-60	1861-88
British	120,000	119,000	180,000	560,000
American	160,000	...	259,000	60,000
French	19,000	...	30,000	45,000
German	7,500	19,000	14,000	68,000
Italian	4,500	10,500	6,000	27,000
Spanish	9,500	5,000	11,000	45,000
Norwegian	29,000	25,000	29,000	40,000
Russian	8,000	12,200	12,500	23,000
Dutch	1,500	...	6,000	5,600
Various	1,000	...	14,500	94,400
Total	.	360,000	179,000	562,000	968,000

The net increase of nominal tonnage from 1861 to 1888 was 179,000 per annum ; but this is not the sum of the above column, as several countries showed a decline.

Great as has been the growth of carrying power in the last 30 years it is much less than the increase in the tonnage of port entries, which has been 3½-fold, while the carrying power has little more than doubled, viz. :—

Year	Nom. Tonnage	Carrying Power	Port Entries
1860 . .	16,600,000	21,730,000	64,100,000
1870 . .	15,940,000	25,100,000	95,400,000
1880 . .	20,280,000	37,900,000	166,300,000
1888 . .	21,680,000	48,800,000	225,200,000

The tonnage of port entries of sea-going vessels at various dates was approximately as follows (the item marked " various " not being accurately known) :—

	1860	1870	1880	1883
U. Kingdom	12,350,000	18,120,000	29,360,000	33,950,000
France . .	4,230,000	6,800,000	12,370,000	14,030,000
Germany . .	3,730,000	6,200,000	6,530,000	9,440,000
Russia . .	2,110,000	3,520,000	5,020,000	7,410,000
Austria . .	2,600,000	3,430,000	4,820,000	7,540,000
Italy . .	2,400,000	3,790,000	4,690,000	6,670,000
Spain . .	1,350,000	2,500,000	5,700,000	11,440,000
Sweden and Norway }	2,100,000	3,790,000	5,400,000	7,320,000
Denmark .	600,000	710,000	2,230,000	3,380,000
Holland . .	1,660,000	2,310,000	3,450,000	5,110,000
Belgium . .	670,000	1,580,000	3,570,000	4,910,000
Greece . .	930,000	1,270,000	1,790,000	2,370,000
United States	5,005,000	6,270,000	15,250,000	15,390,000
British Colonies }	10,880,000	15,200,000	28,260,000	41,300,000
Suez Canal .	...	440,000	4,350,000	9,440,000
Various . .	13,500,000	19,500,000	33,500,000	45,500,000
Total . .	64,115,000	95,430 000	166,290,000	225,200,000

Entries in ballast, which are included in the above table, showed tonnage and ratio to total entries thus :—

	1870	1880	1888	1870	1880	1888
	Tons	Tons	Tons	%	%	%
U. Kingdom	3,200,000	5,100,000	6,900,000	17	17	21
France . .	200,000	400,000	460,000	3	3	3
Germany .	810,000	370,000	700,000	13	6	8
Russia . .	1,820,000	1,860,000	4,800,000	52	36	64
Austria . .	840,000	820,000	700,000	25	17	9
Italy . .	380,000	450,000	570,000	10	10	8
Spain . .	600,000	1,900,000	3,800,000	24	33	33
Sweden . .	1,400,000	1,900,000	2,900,000	65	55	58
Norway . .	1,040,000	980,000	850,000	66	50	35
Denmark .	...	920,000	1,480,000	...	45	44
Holland . .	...	100,000	210,000	...	3	4
Belgium . .	40,000	110,000	700,000	2	3	14
U. States .	...	3,140,000	...	...	21	...

It would seem from the above that as regards European ports the aggregate of entries in ballast has not materially varied, in proportion, since 1870, the ratio being as 21 per cent. of all entries. The following table shows the ratio of entries in each country belonging to the flag of that country, and the ratio corresponding to other or foreign flags :—

	National			Foreign Flags		
	1870	1880	1887	1870	1880	1887
United Kingdom .	68.4	70.4	73.6	31.6	29.6	26.4
Russia . . .	11.2	11.4	7.9	88.8	88.6	92.1
Norway . . .	70.0	68.2	65.5	30.0	31.8	34.5
Sweden . . .	31.8	37.2	35.8	68.2	62.8	64.2
Germany . . .	35.9	39.1	43.3	64.1	60.9	56.7
Holland . . .	28.3	30.9	30.9	71.7	69.1	69.1
France . . .	31.5	30.0	36.2	68.5	70.0	63.8
Spain . . .	36.9	26.6	39.0	63.1	73.4	61.0
Italy . . .	36.5	34.8	23.6	63.5	65.2	76.4
United States .	38.2	18.9	21.0	61.8	81.1	79.0

The principal commercial ports of the world showed the tonnage of sea-going entries in 1888 as follows :—

	Tons			Tons
London . . .	7,470,000	Havre	1,810,000
New York . .	5,470,000	Buenos Ayres .	1,590,000
Liverpool . .	5,370,000	Alexandria . .	1,590,000
Hamburg . . .	4,410,000	Montevideo . .	1,620,000
Antwerp . . .	3,660,000	Athens	1,550,000
Marseilles . . .	3,360,000	Genoa	1,480,000
Hong-Kong . .	3,330,000	Bremen . . .	1,180,000
Cardiff	2,930,000	Boston	1,100,000
Rotterdam . .	2,530,000	San Francisco .	1,050,000
Sydney	2,380,000	Bordeaux . .	1,050,000
Melbourne . .	2,150,000	Stettin	1,040,000
Newcastle . .	1,900,000	Philadelphia . .	1,030,000
Hull	1,900,000	Glasgow . . .	990,000

The above sums up a total of 64 million tons, which is nearly one-third of the commerce of the world, minor ports making up more than two-thirds.

If we compare the value of the imports of all nations with the tonnage of port entries (excluding ballast entries) at various dates, we find :—

Year	Imports, Millions £	Port Entries, Tons	Value, £ per Ton
1860 . . .	707	51,000,000	13.9
1870 . . .	1,040	76,000,000	13.8
1880 . . .	1,440	133,000,000	10.8
1888 . . .	1,502	180,000,000	8.3

This appears to show that coal, iron, and articles of less value, form every succeeding year a larger ratio of sea-borne merchandise.

The registered shipping belonging to the various ports in 1882 was as follows :—

	Sail	Steam	Total	Carrying Power
Liverpool . .	1,080,000	520,000	1,600,000	3,160,000
London . . .	620,000	570,000	1,190,000	2,900,000
Glasgow . . .	350,000	380,000	730,000	1,870,000
New York . .	530,000	210,000	740,000	1,370,000
Marseilles . .	60,000	160,000	220,000	700,000
Hull	40,000	150,000	190,000	640,000
Newcastle . .	60,000	140,000	200,000	620,000
Sunderland . .	110,000	110,000	220,000	550,000
Hamburg . .	140,000	70,000	210,000	420,000
Bremen . . .	160,000	60,000	220,000	400,000
Greenock . .	170,000	40,000	210,000	330,000
San Francisco .	110,000	50,000	160,000	310,000
Philadelphia .	110,000	50,000	160,000	310,000
Trieste . . .	30,000	60,000	90,000	270,000
Leith . . .	20,000	60,000	80,000	260,000
Havre	70,000	50,000	120,000	270,000
New Brunswick	270,000	10,000	280,000	310,000
Barcelona . .	100,000	40,000	140,000	260,000
Genoa . . .	120,000	30,000	150,000	240,000
Odessa . . .	20,000	50,000	70,000	220,000
Amsterdam . .	60,000	40,000	100,000	220,000
Copenhagen .	40,000	40,000	80,000	200,000
Southampton .	30,000	40,000	70,000	190,000
Antwerp . . .	10,000	40,000	50,000	170,000
Aberdeen . .	100,000	20,000	120,000	180,000
Bergen . . .	60,000	20,000	80,000	140,000
Yarmouth . .	160,000	...	160,000	160,000
Other ports . .	10,372,000	2,634,000	13,006,000	20,910,000
The world .	15,002,000	5,644,000	20,646,000	37,580,000

Italian vessels seem to be worked cheaper than others. The following statement was published in 1881 as the monthly average expense of a vessel of 1000 tons with a crew of twenty men :—

	£		£
Italian . . .	95	German . . .	135
Austrian . . .	125	British . . .	145
French . . .	135	American . . .	200

The percentage of vessels lost yearly, and the average life of shipping of various flags, as shown by Mr. Kiaer, are :—

	Annual Loss		Years of a Ship's Life
	Steamer	Sailing	
American . . .	4.06	5.45	18
French	2.47	4.04	20
Dutch . . .	3.84	4.49	22
German . . .	2.77	4.04	23
British . . .	2.94	3.93	26
Italian	1.74	2.94	28
Scandinavian . .	1.96	3.20	30

The weight of anchors and chain-cables for vessels is as follows :—

Vessel, Tons	Anchors, Tons	Heaviest in Cwts.	Cable, Inches	Cable, Length in Fathoms
200	3	13	1.0	180
500	6	25	1.5	270
1,000	9½	42	1.9	300
2,000	18	77	2.1	300

It is usual for vessels to carry seven anchors, four of the maximum weight prescribed above.

The value of shipping and cargoes lost yearly at sea cannot be ascertained precisely. The *Annual Register*

for 1881 published the following statement, but it seems very much exaggerated :—

	Vessels Lost		Value of Ships and Cargo, £	
	1879	1880	1879	1880
British . .	...	913	19,230,000	47,495,000
Foreign . .	...	767	6,270,000	20,832,000
Total .	1,688	1,680	25,500,000	68,327,000

Lloyd's Register gave the following summary of vessels lost in fifteen years, ending 1880 :—

				Number	Annual Average
Missing . . .	.	1,403	94
Sunk by collision	.	.	2,753	183
Burnt . . .	.	2,903	194
Stranded . . .	.	17,502	1,165
Waterlogged, &c.	.	8,026	535
Total . .	32,587	2,172

At Mr. Kiaer's rate of loss of shipping, the total annual loss by shipwreck would be as follows :—

	Shipping, Tons			Value of		
	Steam	Sail	Total	Vessels, £	Cargo, £	Total, £
British	135,000	175,000	310,000	5,600,000	3,000,000	8,600,000
French	12,000	18,000	30,000	500,000	300,000	800,000
German	14,000	29,000	43,000	650,000	400,000	1,050,000
Italian	3,000	20,000	23,000	300,000	200,000	500,000
Dutch	4,000	6,000	10,000	170,000	100,000	270,000
American. . . .	70,000	140,000	210,000	3,400,000	2,000,000	5,400,000
Scandinavian . .	7,000	60,000	67,000	700,000	400,000	1,100,000
Various . . .	25,000	62,000	87,000	1,300,000	800,000	2,100,000
Total . .	270,000	510,000	780,000	12,620,000	7,200,000	19,820,000

The loss of life among seamen is stated by Mr. Plimsoll, on various official returns, to average thus yearly :—

	Per 10,000			Per 10,000
Britain . . .	152	Norway . . .	36
Germany . . .	81	Italy	22
Holland . . .	43	Average . . .	66

UNITED KINGDOM

British and Colonial shipping showed as follows :—

Year	Vessels	Tons	Sailors	Tons per		Reign
				Ship	Sailor	
1588	470	37,400	...	80	...	Elizabeth
1610	910	83,000	...	90	...	James I.
1666	1,320	120,000	...	90	...	Charles II.
1688	2,620	210,000	...	80	...	James II.
1702	3,260	261,000	...	80	...	Anne
1760	5,730	487,000	...	85	...	George III.
1800	17,410	1,856,000	140,000	106	14	George III.
1810	23,703	2,426,000	162,000	102	15	George III.
1820	25,374	2,654,000	175,000	105	15	George IV.
1830	23,721	2,533,000	155,000	107	16	William IV.
1840	28,962	3,311,000	201,000	114	17	Victoria
1850	34,288	4,233,000	239,000	124	18	Victoria
1860	29,469	5,713,000	230,000	193	25	Victoria
1870	32,920	7,150,000	261,000	216	27	Victoria
1881	30,531	8,535,000	270,000	280	31	Victoria
1887	28,212	8,936,000	280,000	320	32	Victoria

The shipping of the United Kingdom, excluding colonial, has been as follows :—

Year	Vessels	Tons	Seamen	Tons per	
				Vessel	Seaman
1810	20,253	2,211,000	145,000	105	15
1830	19,174	2,202,000	131,000	114	17
1850	25,984	3,565,000	148,000	138	24
1870	26,367	5,691,000	196,000	215	29
1881	24,830	6,490,000	193,000	260	33
1888	21,896	7,465,000	224,000	341	33

In 20 years succeeding the war with France our shipping declined in number and tonnage, and in number of men.

In 1808, at the outbreak of the Peninsular War, the merchant navy of the British Empire was composed thus :—

	Vessels	Tons	Sailors
England . . .	15,705	1,822,000	123,400
Scotland . . .	2,615	217,000	15,700
Ireland . . .	1,098	57,000	5,200
Colonies . . .	2,917	185,000	13,600
Total . .	22,335	2,281,000	157,900

If we discriminate steamers from sailing-vessels, allowing the former a carrying power of four to one, we find as follows :—

Year	United Kingdom			British Empire		
	Nominal Tonnage		Total Carrying Power	Nominal Tonnage		Total Carrying Power
	Sail	Steam		Sail	Steam	
1840 . . .	2,480,000	90,000	2,840,000	3,216,000	95,000	3,596,000
1850 . . .	2,950,000	110,000	3,430,000	4,045,000	188,000	4,797,000
1860 . . .	4,205,000	455,000	6,025,000	5,211,000	502,000	7,219,000
1870 . . .	4,580,000	1,110,000	9,020,000	5,947,000	1,203,000	10,759,000
1881 . . .	3,690,000	3,005,000	15,710,000	5,430,000	3,105,000	17,850,000
1887 . . .	3,250,000	4,090,000	19,610,000	4,581,000	4,355,000	22,005,000
1888 . . .	3,115,000	4,350,000	20,515,000	...	...	...

The Navigation Laws were repealed in 1849, and since that date our shipping traffic has increased seven times faster than population. The sea-going entries into ports of the United Kingdom were as follows :—

| Year | Tons | | | British Per- centage |
	British	Foreign	Total	
1840	3,245,000	1,475,000	4,720,000	69
1850	4,720,000	2,530,000	7,250,000	65
1860	6,960,000	5,390,000	12,350,000	56
1870	12,540,000	5,780,000	18,320,000	69
1880	20,670,000	8,690,000	29,360,000	70
1888	24,945,000	9,005,000	33,950,000	73

Coasting entries with cargoes only were as follows :—

| Year | Tons | | |
	British	Foreign	Total
1854	15,320,000	50,000	15,370,000
1860	16,900,000	100,000	17,000,000
1870	18,210,000	90,000	18,300,000
1880	25,920,000	100,000	26,020,000
1888	29,000,000	80,000	29,080,000

The flags of foreign vessels entering British ports in 1878 and 1888 showed as follows :—

| Flag | Tons | |
	1878	1888
Norwegian	1,830,000	2,050,000
German	1,370,000	1,790,000
Dutch	530,000	1,040,000
French	740,000	990,000
Danish	620,000	770,000
Swedish	670,000	710,000
Spanish	230,000	505,000
Italian	630,000	280,000
Various	1,350,000	870,000
Total . .	7,970,000	9,005,000

The sea-going tonnage entered and cleared at the principal ports in the United Kingdom was as follows :—

| | Entered | | Cleared | |
	1878	1888	1878	1888
London . .	5,340,000	7,470,000	4,390,000	5,470,000
Liverpool .	4,400,000	5,370,000	4,390,000	4,940,000
Cardiff . .	1,480,000	2,930,000	2,800,000	5,150,000
Newcastle .	1,500,000	1,900,000	2,570,000	3,320,000
Hull . . .	1,470,000	1,900,000	1,310,000	1,500,000
Newport .	420,000	960,000	640,000	1,470,000
Shields . .	480,000	920,000	450,000	1,070,000
Southampton	905,000	870,000	750,000	790,000
Sunderland .	590,000	740,000	780,000	930,000
Middles- brough }	310,000	680,000	290,000	560,000
Grimsby . .	400,000	590,000	410,000	590,000
Bristol . .	440,000	580,000	230,000	180,000
Glasgow .	550,000	990,000	910,000	1,550,000
Greenock .	290,000	280,000	200,000	180,000
Dublin . .	330,000	210,000	190,000	80,000
Belfast . .	210,000	190,000	140,000	70,000
Various . .	6,175,000	7,370,000	5,850,000	6,720,000
Total . .	25,290,000	33,950,000	26,300,000	34,570,000

The tonnage of vessels entered at various dates was :—

Year	Sea-going	Coasting	Total
1801 . . .	1,720,000	6,000,000	7,720,000
1810 . . .	2,070,000	7,000,000	9,070,000
1820 . . .	2,110,000	8,000,000	10,110,000
1830 . . .	2,940,000	8,240,000	11,180,000
1840 . . .	4,720,000	12,600,000	17,320,000
1850 . . .	7,250,000	21,510,000	28,760,000
1860 . . .	12,340,000	24,400,000	36,740,000
1870 . . .	18,320,000	28,850,000	47,170,000
1880 . . .	29,070,000	36,140,000	65,210,000
1888 . . .	33,950,000	47,570,000	81,520,000

The service of pilot-boats in 1882 stood thus :—

	Boats	Pilots
England	692	2,066
Scotland	226	432
Ireland	132	395
United Kingdom . . .	1,050	2,893

Some of the merchant steamboat companies are equal in importance to the navies of some European Powers. The Cunard Co., for example, employs 10,000 men. The vessels, moreover, of the first-class companies are unsurpassed. At a recent meeting of the Society of Engineers the chairman said, "The *Teutonic*, 582 feet long, with a gross tonnage of 9680, can carry 1200 passengers, and in time of war twelve five-inch guns, with a range of five miles. The *City of Paris* runs twenty-four miles an hour, is 10,500 tons burthen, and has 18,000 horse-power. The Pacific and Oriental Steamers now use pressure at 160 lbs. with greater safety than they did fifty lbs. thirty years ago." As regards speed, British vessels beat all others. The *City of Paris* has run from Queenstown to New York in 5 days 20 hours, and from New York to Queenstown in 5 days 23 hours : on one day her run of 24 hours reached 511 miles, the highest on record. The *Roslyn Castle* has run from Cape Town to London in 17 days 13 hours. The *Stirling Castle* from Hankow (China) to London in 29 days 22 hours. The fastest steamer in the world appears to be the *Prince of Wales*, which averages twenty-four knots, or twenty-seven statute miles per hour (being three miles faster than the *City of Paris*), plying between Liverpool and Isle of Man. The greatest speed of sailing ships was as follows :— *James Baines*, 420 miles, *Flying Cloud*, 412 miles in 24 hours, being over seventeen miles an hour. The *Red Jacket* ran 2280 miles in seven days, averaging 325 miles a day.

Shipbuilding is carried on more extensively in the United Kingdom than elsewhere ; in fact, more than 80 per cent. of the world's shipping is built here. At a meeting in 1890 Mr. Palmer stated that " we were building in this country at the present time about a million tons of shipping, and the normal waste or loss was about 400,000 tons, leaving a surplus of 600,000 tons as an addition to mercantile marine."

The tonnage built in the United Kingdom was :—

Period	Sail	Steam	Total	Carrying Power
1801–10	520,000	...	520,000	520,000
1811–20	840,000	10,000	850,000	880,000
1821–30	800,000	40,000	840,000	960,000
1831–40	885,000	75,000	960,000	1,185,000
1841–50	990,000	160,000	1,150,000	1,630,000
1851–60	1,530,000	810,000	2,340,000	4,770,000
1861–70	2,100,000	1,490,000	3,590,000	8,100,000
1871–80	1,390,000	3,190,000	4,580,000	14,200,000
1881–89	1,265,000	4,555,000	5,820,000	19,500,000
89 years	10,320,000	10,330,000	20,650,000	51,745,000

From 1855 the distinction of vessels built for British from those for foreign flags was as follows :—

	Nominal Tonnage British			Nominal Tonnage Foreign		
	Steam	Sail	Total	Steam	Sail	Total
1855-59	283,000	930,000	1,213,000	144,000	8,000	152,000
1860-69	1,080,000	2,060,000	3,140,000	243,000	34,000	277,000
1870-79	2,590,000	1,390,000	3,980,000	474,000	40,000	514,000
1880-88	3,210,000	1,130,000	4,340,000	670,000	40,000	710,000
34 years	7,163,000	5,510,000	12,673,000	1,531,000	122,000	1,653,000

In ten years ending December 1889 there were built 5,932,000 tons of merchant shipping, of which 930,000 tons were for foreign flags, the rest for the British.

The Clyde is one of the principal seats of this industry :—

Year	Vessels Built, Tons		
	Clyde	Other Places	Total
1880 . . .	237,000	469,000	706,000
1882 . . .	389,000	391,000	780,000
1889 . . .	335,000	875,000	1,210,000

Vessels on the stocks on December 31, 1889, were :—

	Steam		Sail		Total	
	No.	Tons	No.	Tons	No.	Tons
Steel. . .	382	745,000	54	87,000	436	832,000
Iron . . .	57	21,000	8	6,000	65	27,000
Wood . .	7	1,000	35	3,000	42	4,000
Total .	446	767,000	97	96,000	543	863,000
Built for						
U. Kingdom	309	560,000	53	58,000	362	618,000
Colonies .	16	32,000	...	...	16	32,000
Germany .	16	46,000	4	7,000	20	53,000
Norway .	12	12,000	...	...	12	12,000
France . .	8	13,000	2	7,000	10	20,000
Various . .	85	104,000	38	24,000	123	128,000
Total .	446	767,000	97	96,000	543	863,000

The use of steel in shipbuilding was begun in 1879, when the tonnage of steamers built of it was 18,000: at present, as shown above, 96 per cent. of all vessels built are of steel. It is found that a steel vessel can carry 20 per cent. more than an iron one. Improvements in machinery cause a great saving in coal, the average consumption now being 1½ lbs. per indicated horse-power hourly, as compared with 6 lbs. in the year 1837.

Lloyd's estimate of shipping value in 1882 was £30 a ton for steamers, including fittings and furniture, and £10 a ton for sailing vessels. The cost of building has, however, since fallen, and at present a fair valuation of our merchant navy would be as follows :—

	Tons	Value, £	£ per Ton
Sailing . .	3,115,000	24,920,000	8
Steam . .	4,350,000	108,750,000	25
Total .	7,465,000	133,670,000	18

The tonnage of British vessels lost or broken up in nine years (1880–88) was as follows :—

Period	Steam	Sail	Total	Carrying Power
1880–84 . .	810,000	1,338,000	2,148,000	4,578,000
1885–88 . .	580,000	854,000	1,434,000	3,174,000
9 years . .	1,390,000	2,192,000	3,582,000	7,752,000

The death-rate of vessels (that is, the percentage lost or broken up in the same nine years) was :—

Steam . . . . . 4.2 per annum
Sail . . . . . 7.0 per annum

According to Mr. Kiaer, the losses of British vessels on sea average 3 per cent. of steamers and 4 per cent. of sailing vessels: on this basis the decease of shipping in 1880–89 would be made up thus :—

	Steam	Sail	Total, Tons
Lost at sea . .	990,000	1,224,000	2,214,000
Broken up . . .	400,000	968,000	1,368,000
Total decease .	1,390,000	2,192,000	3,582,000

The loss of life in British vessels was as follows :—

Year	Crews	Passengers	Total	Yearly Average
1871–75 . .	9,715	2,037	11,752	2,350
1876–80 . .	7,965	772	8,737	1,747
1881–83 . .	7,376	382	7,758	2,586
Total .	25,056	3,191	28,247	2,173

Lifeboats were established on the British coasts in 1824, which in sixty-three years down to 1887 were the means of saving 34,043 lives, an average of 550 yearly. There are at present 272, manned by 12,000 volunteer seamen, the coxswain alone being paid to mind the boat. They are supported by voluntary donations, which average £43,000 yearly.

FRANCE

In 1669 the merchant navy comprised 600 vessels, the number rising to 800 in 1720, of 150,000 tons aggregate, and to 1000 in 1788, with an aggregate of 250,000 tons.

French Shipping in	Number			Tons			Carrying Power
	Steam	Sail	Total	Steam	Sail	Total	
1840	94	14,354	14,448	10,000	624,000	634,000	664,000
1850	164	14,300	14,464	27,000	733,000	760,000	841,000
1860	346	14,823	15,169	84,000	929,000	1,013,000	1,265,000
1870	486	15,020	15,506	170,000	886,000	1,056,000	1,566,000
1880	652	14,406	15,058	278,000	641,000	919,000	1,753,000
1888	1,015	14,263	15,278	510,000	451,000	961,000	2,491,000

The total tonnage entered and cleared at French ports since 1837 showed the following averages :—

Period	Annual Average, Tons						Total Crew
	Steam	Sail	Total	In Ballast	French	Foreign	
1837–46	680,000	3,390,000	4,070,000	920,000	1,470,000	2,600,000	337,000
1847–56	1,270,000	4,370,000	5,640,000	1,260,000	2,230,000	3,410 000	443,000
1857–66	3,310,000	6,220,000	9,530,000	1,920,000	3,820,000	5,710,000	662,000
1867–76	8,050,000	6,850,000	14,900,000	3,080,000	4,950,000	9,950,000	868,000
1877–86	17,820,000	6,610,000	24,430,000	5,330,000	8,010,000	16,420,000	1,070,000
1886	22,480,000	4,270,000	26,750,000	5,030,000	9,600,000	17,150,000	1,096,000

Crew and tonnage are doubled in the above table, as it includes vessels both entered and cleared.

The following table shows the tonnage of entries only, that is, the annual average :—

Period	Vessels	Tons	Tons per Ship	Per Seaman
1837–46 . .	18.496	2,040,000	110	12
1847–56 . .	22,323	2,800,000	125	13
1857–66 . .	30,590	4,710,000	154	14
1867–76 . .	34,529	7,380,000	214	17
1877–86 . .	34,800	12,100,000	345	23
1886 . . .	30,463	13,100,000	430	24

The percentage of steam, sail, ballast, French and foreign vessels entered and cleared since 1837 was as follows :—

Period	In every 100 Tons of Shipping				
	French	Foreign	Steam	Sail	Ballast
1837–46 . .	36	64	17	83	23
1847–56 . .	40	60	22	78	22
1857–66 . .	40	60	35	65	20
1867–76 . .	33	67	54	46	21
1877–86 . .	33	67	73	27	21
1886 . . .	36	64	84	16	19

The *cabotage* or coasting trade of France since 1837 was as follows :—

Period	Annual Average			
	Vessels	Tonnage	Men	Tons Cargo
1837–46 . .	77,300	2,480,000	310,000	2,010,000
1847–56 . .	73,400	2,680,000	312,000	2,250,000
1857–66 . .	75,700	3,060,000	291,000	2,340,000
1867–76 . .	60,100	2,930,000	237,000	2,030,000
1877–86 . .	57,600	3,730,000	271,000	2,035,000

In 1886 the coasting trade was made up thus :—

	Vessels	Tonnage	Men	Tons Cargo
Ocean . . .	47,030	2,460,000	181,500	1,530,000
Mediterranean	8,870	1,980,000	112,800	700,000
Total . .	55,900	4,440,000	294,300	2,230,000

The following table shows the total sea-going and coasting tonnage entered and cleared at all ports in 1886 :—

	Tonnage	Tons Cargo
Marseilles . . .	8,300,000	1,190,000
Havre . . .	4,030,000	2,350,000
Bordeaux . . .	2,930,000	2,360,000
Dunkirk . . .	1,550,000	1,760,000
Various . . .	13,800,000	12,800,000
Total .	30,610,000	20,460,000

The great difference between tonnage of vessels at Marseilles and weight of cargo handled probably arises from the fact that the passenger traffic forms the principal share. The shipping registered at the various ports in 1885 was as follows :—

Port	Tonnage			Carrying Power
	Sail	Steam	Total	
Havre .	40,000	147,000	187,000	630,000
Bordeaux .	58,000	25,000	83,000	158,000
Marseilles	29,000	245,000	274,000	1,009,000
Various .	365,000	84,000	449,000	701,000
Total .	492,000	501,000	993,000	2,498,000

The Empress Eugenie introduced lifeboat stations in 1866, of which in 1882 there were 37, at exposed points of the coast. The French merchant navy in 1886 had 93,800 seamen, viz. :—

Vessels of	Tonnage	Crew	Tons per Man
Under 100 tons . .	197,000	61,300	3
100–300 . . .	165,000	12,100	14
300–500 . . .	100,000	3,700	27
Over 500 . . .	531,000	16,700	32
Total .	993,000	93,800	11

The total tonnage entered and cleared at all ports in 1888 was as follows :—

	Tons		
	Entered	Cleared	Total
French .	10,980,000	11,260,000	22,240,000
Foreign .	7,150,000	9,300,000	16,450,000
Total .	18,130,000	20,560,000	38,690,000
Ballast .	1,470,000	6,080,000	7,550,000
Cargo . .	16,660,000	14,480,000	31,140,000
Total .	18,130,000	20,560,000	38,690,000

Most of the French merchant navy is of small tonnage, there being only 2475 vessels over 50 tons, and 12,803 below that standard.

GERMANY

The merchant navy in 1842 consisted of 8200 vessels, with an aggregate of 551,000 tons. Later statistics are as follow :—

Year	Vessels, Number			Tons		
	Steam	Sail	Total	Steam	Sail	Total
1871	147	4,372	4,519	82,000	900,000	982,000
1880	414	4,246	4,660	216,000	966,000	1,182,000
1888	750	2,885	3,635	503,000	731,000	1,234,000

The size and carrying power of the vessels have grown as follows :—

	Vessels	Tons	Carrying Power	Per Vessel	
				Tons	Carrying Power
1842	8,200	551,000	551,000	67	67
1871	4,519	982,000	1,228,000	218	270
1888	3,635	1,234,000	2,743,000	338	751

The carrying power compares with the number of seamen as follows :—

Year	Seamen	Carrying Power	Tons per Man
1871 . . .	39,500	1,228,000	31
1877 . . .	53,400	1,830,000	35
1889 . . .	36,300	2,743,000	75

The ratio of carrying power per seaman has more than doubled in twelve years. It is now 75 tons per man, against 91 in the British merchant-navy. But in spite of the increased efficiency of German seamen, the carrying trade of German ports is passing into the hands of other maritime nations, the ratio of German entries being less than it was thirty years ago.

The tonnage of entries into all German ports was as follows :—

Year	German	Foreign	Total	German Ratio per Cent.
1860 . . .	1,740,000	1,990,000	3,730,000	47
1870 . . .	2,705,000	3,500,000	6,205,000	43
1880 . . .	2,560,000	3,970,000	6,530,000	39
1888 . . .	3,910,000	5,530,000	9,440,000	42

Entries in the ports of the German Empire in 1886 were as follows :—

From	Vessels	Tons	Flag	Vessels	Tons
German ports . . .	28,320	1,520,000	German	6,967	3,740,000
Great Britain . . .	7,042	3,420,000	British	4,193	2,710,000
Denmark	4,330	520,000	Danish	4,032	570,000
Sweden and Norway .	3,238	560,000	Russian	457	120,000
United States . . .	869	1,170,000	Sweden and Norway .	3,054	800,000
Various	4,057	2,030,000	Various	29,203	1,280,000
Total . . .	47,856	9,220,000	Total . . .	47,856	9,220,000

Entries and clearances in 1888 were as follows :—

Ports	Entered, Tons	Cleared, Tons	Total
Hamburg . . .	4,410,000	4,440,000	8,850,000
Bremen . . .	1,180,000	1,190,000	2,370,000
Stettin	1,040,000	1,060,000	2,100,000
Dantzig . . .	630,000	640,000	1,270,000
Various . . .	2,180,000	2,105,000	4,285,000
Total . .	9,440,000	9,435,000	18,875,000

The trade of Hamburg has grown nearly tenfold since 1846, when the entries were 460,000 tons.

The coasting trade in 1885 showed the following entries :—

	Vessels	Tons
Hamburg	6,489	3,633,000
Bremen . . .	2,426	976,000
Other ports . .	52,270	5,615,000
Total . .	61,185	10,234,000

Vessels with cargo formed 92, in ballast 8 per cent. of the above tonnage.

RUSSIA AND FINLAND

In 1842 the merchant navy comprised 1000 vessels with 240,000 tons aggregate. In recent years the returns show :—

Year	Vessels			Tons			Carrying Power
	Steam	Sail	Total	Steam	Sail	Total	
1876	356	3,975	4,331	82,000	600,000	682,000	930,000
1880	529	5,776	6,305	100,000	640,000	740,000	1,040,000
1886	594	3,982	4,576	142,000	605,000	747,000	1,170,000

The tonnage of vessels entered into Russian ports was :—

Year	Russian	Foreign	Total
1837 . . .	47,000	888,000	935,000
1866 . . .	540,000	2,036,000	2,576,000
1871 . . .	595,000	3,400,000	3,995,000
1880 . . .	580,000	4,440,000	5,020,000
1888 . . .	510,000	6,900,000	7,410,000

The internal navigation in 1880 employed 385 steamers and 13,000 canal-boats. The sea-going and coast traffic in 1888 showed entries as follows :—

	Vessels	Tons
Sea-going	12,575	7,410,000
Coast	23,978	4,753,000
Total . .	36,553	12,163,000

Sea-going entries were distributed thus :—

	Vessels	Tons
Baltic	6,966	3,090,000
Black Sea . . .	4,921	3,730,000
Other seas . .	688	590,000
Total . .	12,575	7,410,000

AUSTRIA

The first impulse given to Austrian shipping was the establishment of the Austrian Lloyd's Company to trade in the Levant in 1833 ; the second, the Danube Naviga-tion Company, founded in 1850. The latter has steamers which carry 1,200,000 passengers and 1,400,000 tons of merchandise yearly. The merchant navy of the Empire in 1849 comprised 6083 vessels of 260,000 tons aggregate, manned by 27,000 seamen. In later years we find as follows :—

Year	Vessels			Tons			Carrying Power
	Steam	Sail	Total	Steam	Sail	Total	
1870	91	702	793	50,000	280,000	330,000	480,000
1880	80	526	606	60,000	230,000	290,000	470,000
1888	98	269	367	90,000	130,000	220,000	490,000

The tonnage of entries was as follows :—

Year	Austrian	Foreign	Total
1861 . . .	2,400,000	420,000	2,820,000
1870 . . .	2,840,000	590,000	3,430,000
1880 . . .	4,190,000	630,000	4,820,000
1888 . . .	6,740,000	805,000	7,545,000

In later years the returns of shipping of the kingdom of Italy show as follows :—

	Vessels			Tons			Carrying Power
	Steam	Sail	Total	Steam	Sail	Total	
1872 . . .	118	10,951	11,069	38,000	993,000	1,031,000	1,145,000
1880 . . .	158	7,822	7,980	77,000	922,000	999,000	1,230,000
1888 . . .	266	6,544	6,810	175,000	675,000	850,000	1,375,000

Port entries since 1861 have risen as follows in ton-nage :—

Year	Italian	Foreign	Total Sea-going	Coasting	Total Entries
1861	820,000	1,700,000	2,520,000	...	...
1870	1,340,000	2,450,000	3,790,000	5,930,000	9,720,000
1880	1,700,000	2,990,000	4,690,000	8,400,000	13,090,000
1888	1,720,000	4,950,000	6,670,000	13,380,000	20,050,000

The above figures show that since 1870 the sea-going trade has risen 75 per cent., and coasting trade 125 per cent.

The total of entries and clearances in 1888 was as fol-lows :—

	Entries, Tons	Cleared, Tons	Total
Sea-going . . .	6,670,000	6,400,000	13,070,000
Coasting . . .	13,380,000	12,790,000	26,170,000
Total . .	20,050,000	19,190,000	39,240,000

In 1889 the tonnage of sea-going vessels that entered the Danube was as follows :—

	Tons
British	1,001,000
Greek	128,000
Various	285,000
Total . .	1,414,000

This table, however, applied only to that part of the Danube outside the Austrian dominions.

The total shipping of the Austrian Empire of all sizes in 1886 was as follows :—

	Vessels	Tons	Seamen
Sea-going . . .	393	250,000	5,400
Coasting . . .	8,975	62,000	23,400
Total .	9,368	312,000	28,800

The aggregate horse-power of merchant steamers was 23,000.

ITALY

In 1842 the merchant shipping of all the Italian States summed up 14,680 vessels, with an aggregate of 462,000 tons. In 1850 the marine of the three principal States was as follows :—

	Vessels	Tons
Naples	3,600	168,000
Sardinia	6,300	167,000
Tuscany	800	34,000
Total . .	10,700	369,000

The aggregate of vessels' tonnage entered and cleared was as follows :—

Year	Sea-going	Coasting	Total
1861 . . .	5,080,000	8,000,000	13,080,000
1870 . . .	7,620,000	9,680,000	17,300,000
1888 . . .	11,070,000	26,170,000	39,240,000

This shows that the shipping business of Italy has more than doubled since 1870. The trade of the principal ports in 1888 was as follows :—

	Tons Entered	Tons Cleared	Total
Genoa	2,810,000	2,850,000	5,660,000
Naples	1,750,000	1,750,000	3,500,000
Palermo . . .	1,390,000	1,390,000	2,780,000
Leghorn . . .	1,300,000	1,290,000	2,590,000
Messina . . .	1,080,000	1,070,000	2,150,000
Venice	890,000	890,000	1,780,000
Various . . .	10,830,000	9,950,000	20,780,000
Total . .	20,050,000	19,190,000	39,240,000

SPAIN

At the death of Charles II., in 1700, the merchant navy had an aggregate of 27,000 tons. In recent years the tonnage was :—

Year	Steam	Sail	Total	Carrying Power
1842	...	280,000	280,000	280,000
1859	13,000	460,000	473,000	512,000
1872	45,000	340,000	385,000	520,000
1880	230,000	330,000	560,000	1,250,000
1888	395,000	205,000	600,000	1,785,000

Port entries of sea-going vessels showed the following tonnage :—

Year	Spanish	Foreign	Total
1860 . . .	420,000	930,000	1,350,000
1872 . . .	890,000	1,960,000	2,850,000
1880 . . .	1,300,000	4,400,000	5,700,000
1888 . . .	4,600,000	6,850,000	11,450,000

The total port traffic in 1888 was as follows in tonnage :—

	Entered	Cleared	Total
Sea-going . . .	11,450,000	10,880,000	22,330,000
Coasting . . .	5,660,000	5,240,000	10,900,000
Total . .	17,110,000	16,120,000	33,230,000

The returns of coast traffic are for 1885; no later published.

PORTUGAL

In 1842 the merchant navy counted 798 vessels, with an aggregate of 81,000 tons; in 1889 it comprised only 443 vessels, with an aggregate of 78,000 tons. The tonnage of vessels entered and cleared was as follows :—

Flag	Entered		Cleared	
	1878	1888	1878	1888
Portuguese .	170,000	210,000	160,000	190,000
Foreign . .	2,330,000	3,750,000	2,250,000	3,730,000
Total . .	2,500,000	3,960,000	2,410,000	3,920,000

Of the foreign entries in 1888, British vessels stood for 2,140,000 tons, or considerably more than half the trade of Portugal.

SWEDEN

The merchant navy at various dates stood thus :—

Year	Steam	Sail	Total	Carrying Power
1800	...	64,000	64,000	64,000
1837	...	120,000	120,000	120,000
1872	48,000	340,000	388,000	530,000
1880	81,000	460,000	541,000	780,000
1888	125,000	375,000	500,000	875,000

The tonnage of port entries was as follows :—

Year	Swedish	Foreign	Total
1830 . . .	163,000	170,000	333,000
1866 . . .	495,000	1,135,000	1,630,000
1870 . . .	680,000	1,480,000	2,160,000
1880 . . .	1,270,000	2,170,000	3,440,000
1888 . . .	1,760,000	3,260,000	5,020,000

The entries in 1888 were as follows :—

	With Cargo	In Ballast	Total
Swedish . . .	1,060,000	700,000	1,760,000
Foreign . . .	1,010,000	2,250,000	3,260,000
Total . .	2,070,000	2,950,000	5,020,000
	Steamers	Sailing	Total
Swedish . . .	1,110,000	650,000	1,760,000
Foreign . . .	2,295,000	965,000	3,260,000
Total . .	3,405,000	1,615,000	5,020,000

NORWAY

In 1836 the merchant navy was one of the most considerable in the world, comprising 2430 vessels, with an aggregate of 212,000 tons, and 13,000 seamen. The tonnage at various dates was as follows :—

	Sail	Steam	Total	Carrying Power
1836 . . .	212,000	...	212,000	212,000
1872 . . .	1,090,000	30,000	1,120,000	1,210,000
1880 . . .	1,460,000	58,000	1,518,000	1,690,000
1888 . . .	1,400,000	135,000	1,535,000	1,940,000

Tonnage of port entries at various dates showed thus :—

Year	Norwegian	Foreign	Total
1860 . . .	700,000	260,000	960,000
1870 . . .	1,120,000	480,000	1,600,000
1880 . . .	1,340,000	630,000	1,970,000
1888 . . .	1,450,000	850,000	2,300,000

The sea-going trade in 1887 showed the ports thus :—

	Tons Entered	Tons Cleared
Christiania . . .	740,000	560,000
Bergen . . .	270,000	240,000
Drontheim . . .	110,000	120,000
Various . . .	1,210,000	1,500,000
Total . .	2,330,000	2,420,000

In 1876 the merchant navy of Norway had 56,200 seamen, of whom 43,700 in sea-going vessels, the rest in coasters.

DENMARK

In 1748 the Danish merchant navy counted 1800 vessels; in 1789 it exceeded 4000, declining in 1825 to 3870, and in 1835 to 3700. The tonnage at various dates showed :—

Year	Steam	Sail	Total	Carrying Power
1825 . . .	...	118,000	118,000	118,000
1835 . . .	...	144,000	144,000	144,000
1850 . . .	...	153,000	153,000	153,000
1872 . . .	15,000	175,000	190,000	235,000
1880 . . .	52,000	198,000	250,000	405,000
1888 . . .	95,000	175,000	270,000	555,000

Tonnage of port entries was as follows :—

Year	Danish	Foreign	Total
1860 . . .	260,000	340,000	600,000
1870 . . .	310,000	400,000	710,000
1880 . . .	1,200,000	1,030,000	2,230,000
1888 . . .	1,750,000	1,630,000	3,380,000

The shipping trade of 1888 was as follows in tonnage :—

	Steam	Sail	Total
Entered . . .	2,670,000	710,000	3,380,000
Cleared . . .	2,650,000	720,000	3,370,000
Total . .	5,320,000	1,430,000	6,750,000

The Sound dues during fourteen years down to 1799 averaged £150,000 a year from 10,000 vessels, that is, £15 each. In later years we find as follows :—

Year	Dues Paid by			Number of Vessels
	British	Other Vessels	Total, £	
1821 . .	67,000	100,000	167,000	9,200
1830 . .	51,000	110,000	161,000	13,300
1837 . .	54,000	160,000	214,000	13,100

The dues were 1 per cent. on the value of the cargo, and were abolished in 1857, when Great Britain paid Denmark £1,200,000 and other nations £2,400,000 as indemnity.

HOLLAND

The tonnage of merchant shipping of the Dutch flag was as follows :—

Year	Steam	Sail	Total	Carrying Power
1826 . . .	...	148,000	148,000	148,000
1842 . . .	...	275,000	275,000	275,000
1872 . . .	34,000	350,000	384,000	490,000
1880 . . .	65,000	265,000	330,000	525,000
1888 . . .	105,000	140,000	245,000	560,000

Tonnage of port entries was as follows :—

Year	Dutch	Foreign	Total
1828 . . .	284,000	439,000	723,000
1837 . . .	327,000	449,000	776,000
1860 . . .	650,000	1,005,000	1,655,000
1870 . . .	660,000	1,650,000	2,310,000
1880 . . .	1,055,000	2,390,000	3,445,000
1888 . . .	1,600,000	3,510,000	5,110,000

The trade of 1888 showed as follows :—

	With Cargo	In Ballast	Total
Entered . . .	4,900,000	210,000	5,110,000
Cleared . . .	2,960,000	2,080,000	5,040,000
Total . .	7,860,000	2,290,000	10,150,000

The principal ports showed as follows, cargo only :—

	Entered	Cleared	Total
Rotterdam . .	2,525,000	1,420,000	3,945,000
Amsterdam . .	940,000	570,000	1,510,000
Flushing . . .	630,000	650,000	1,280,000
Various . . .	805,000	320,000	1,125,000
Total . .	4,900,000	2,960,000	7,860,000

In 1670 Sir William Petty estimated that the Dutch possessed one-half the shipping of the world : at present they have less than 1½ per cent. of the total.

BELGIUM

The merchant navy was as follows, in tonnage :—

Year .	Steam	Sail	Total	Carrying Power
1842 . . .	...	27,000	27,000	27,000
1870 . . .	10,000	20,000	30,000	60,000
1880 . . .	65,000	10,000	75,000	270,000
1888 . . .	73,000	4,000	77,000	295,000

Tonnage of port entries was as follows :—

Year	Steam	Sail	Total
1840 . . .	...	237,000	237,000
1850 . . .	...	315,000	315,000
1860 . . .	176,000	491,000	667,000
1870 . . .	839,000	736,000	1,575,000
1880 . . .	2,813,000	758,000	3,571,000
1887 . . .	4,080,000	492,000	4,572,000

The countries from which the tonnage came were :—

	1840	1860	1887
Great Britain . .	60,000	240,000	1,740,000
United States .	30,000	40,000	620,000
Germany . . .	30,000	75,000	370,000
Russia	35,000	90,000	315,000
France	10,000	20,000	190,000
Argentina . . .	...	20,000	190,000
Various	72,000	182,000	1,147,000
Total . .	237,000	667,000	4,572,000

Antwerp stands for 80 per cent. of the shipping trade of the kingdom, viz. :—

	1840	1860	1887
Antwerp . . .	180,000	512,000	3,665,000
Other ports . .	57,000	155,000	907,000
Total . .	237,000	667,000	4,572,000

GREECE

The mercantile marine at various dates had the following tonnage :—

	Steam	Sail	Total	Carrying Power
1842 . . .	...	186,000	186,000	186,000
1872 . . .	6,000	234,000	240,000	258,000
1887 . . .	31,000	227,000	258,000	350,000

Tonnage of port entries was as follows :—

Year	Greek	Foreign	Total
1860 . . .	430,000	500,000	930,000
1870 . . .	420,000	850,000	1,270,000
1888 . . .	330,000	2,040,000	2,370,000

Piraeus (Athens) stood for 1,550,000 tons, or 66 per cent. of the total. The merchant navy of Greece in 1880 had 26,800 sailors.

TURKEY

The tonnage of the merchant navy at various dates was as follows :—

Year	Sail	Steam	Total	Carrying Power
1842 . . .	182,000	...	182,000	182,000
1875 . . .	170,000	10,000	180,000	210,000
1889 . . .	153,000	64,000	217,000	410,000

Port entries in 1888 were as follows :—

At	Tons	Flag	Tons
Constantinople . .	8,790,000	British . .	9,270,000
Levant and Black Sea	18,790,000	Turkish . .	4,810,000
Red Sea . . .	540,000	Austrian . .	3,720,000
Persian Gulf . . .	160,000	Various . .	10,480,000
Total . .	28,280,000	Total .	28,280,000

In 1888 no fewer than 15,820 vessels entered the Dardanelles, with an aggregate of 10,460,000 tons, the share of British vessels being 7,030,000 tons.

EGYPT

The trade returns of the Suez Canal since 1870 will be found under the head of *Canals*, p. 102.

The tonnage of arrivals at Alexandria and that of vessels passing through the Suez Canal in 1888 showed thus :—

	Alexandria, Tons	Canal, Tons
British	690,000	7,340,000
Turkish	250,000	30,000
French	250,000	580,000
Austrian	160,000	170,000
Russian	120,000	50,000
Italian	60,000	400,000
Various	60,000	870,000
Total . .	1,590,000	9,440,000

UNITED STATES

The merchant shipping of the Union at various dates was in tonnage as follows :—

Year	High Seas	Coasting, &c.	Total	Sail	Steam	Carrying Power
1789	124,000	78,000	202,000	202,000	...	202,000
1795	530,000	218,000	748,000	748,000	...	748,000
1800	670,000	300,000	970,000	970,000	...	970,000
1810	980,000	440,000	1,420,000	1,420,000	...	1,420,000
1820	580,000	700,000	1,280,000	1,260,000	20,000	1,340,000
1830	540,000	650,000	1,190,000	1,125,000	65,000	1,385,000
1840	760,000	1,420,000	2,180,000	1,980,000	200,000	2,780,000
1850	1,440,000	2,095,000	3,535,000	3,010,000	525,000	5,110,000
1860	2,380,000	2,970,000	5,350,000	4,480,000	870,000	7,960,000
1870	1,450,000	2,800,000	4,250,000	3,175,000	1,075,000	7,475,000
1880	1,310,000	2,760,000	4,070,000	2,860,000	1,210,000	7,700,000
1889	1,000,000	3,310,000	4,310,000	2,540,000	1,770,000	9,620,000

American shipping differs from that of other nations, inasmuch as less than one-fourth is engaged on the high seas : coasting and internal traffic take 77 per cent. of the total merchant-navy. The carrying-power has risen only 20 in the last thirty years. It was less in 1880 than twenty years before, but has since recovered.

The tonnage of vessels built since 1812 was as follows :—

Period	Sail	Steam	Total	Carrying Power	Do. per Annum
1812–20	730,000	25,000	755,000	830,000	92,000
1821–30	830,000	65,000	895,000	1,090,000	109,000
1831–40	1,010,000	175,000	1,185,000	1,710,000	171,000
1841–50	1,480,000	370,000	1,850,000	2,960,000	296,000
1851–60	2,930,000	730,000	3,660,000	5,850,000	585,000
1861–70	2,110,000	910,000	3,020,000	5,750,000	575,000
1871–80	1,770,000	760,000	2,530,000	4,810,000	481,000
1881–89	930,000	970,000	1,900,000	4,810,000	534,000
78 years	11,790,000	4,005,000	15,795,000	27,810,000	356,000

If we suppose that the vessels which have disappeared from the register in the last nine years were either lost or broken up (since very few have been sold to other flags), we find the death-rate of American vessels as follows :—

	Lost, &c., Tons Yearly	Tonnage of Shipping	Annual Loss per Cent.
Sail . . .	140,000	2,700,000	5.2
Steam . . .	45,000	1,500,000	3.0
Total .	185,000	4,200,000	4.4

The principal maritime states showed tonnage of vessels belonging to citizens of same in 1850 and 1886 thus :—

State	Tons	
	1850	1886
New York . . .	944,000	1,220,000
Massachusetts . .	685,000	440,000
Maine . . .	501,000	490,000
Pennsylvania . .	258,000	280,000
Louisiana . . .	250,000	70,000
Maryland . . .	193,000	150,000
Various . . .	704,000	1,620,000
Total .	3,535,000	4,270,000

The proportions of trade—that is, of imports and exports combined—done on American and on foreign bottoms since 1821 are shown as follows :—

Year	Trade, £			Percentage	
	United States Flag	Foreign	Total	American	Foreign
1821	23,600,000	3,100,000	26,700,000	89	11
1830	27,300,000	3,100,000	30,400,000	90	10
1840	41,900,000	8,500,000	50,400,000	83	17
1850	50,000,000	19,000,000	69,000,000	72	28
1860	105,500,000	53,000,000	158,500,000	66	34
1870	62,000,000	132,000,000	194,000,000	32	68
1880	58,200,000	272,000,000	330,800,000	17	83
1889	54,000,000	253,000,000	307,000,000	17	83

The tonnage of entries into United States ports under various flags was :—

Flag	Tonnage			Ratio		
	1860	1870	1889	1860	1870	1889
American	3,302,000	2,452,000	3,130,000	66.0	39.2	23.5
British	1,263,000	2,792,000	6,820,000	25.2	44.4	51.3
German	231,000	679,000	1,130,000	4.6	10.9	8.5
Scandinavian . . .	32,000	108,000	725,000	0.6	1.7	5.4
Italian	32,000	48,000	290,000	0.6	0.8	2.2
French	24,000	81,000	320,000	0.5	1.3	2.4
Spanish	63,000	31,000	260,000	1.3	0.5	1.9
Various	56,000	79,000	635,000	1.2	1.2	4.8
Total . .	5,003,000	6,270,000	13,310,000	100.0	100.0	100.0

The tonnage entered and cleared at the principal ports was :—

State	Entered			Cleared		
	1865	1875	1889	1865	1875	1889
New York . . .	2,080,000	4,420,000	5,600,000	2,100,000	4,310,000	5,450,000
Boston	660,000	770,000	1,400,000	670,000	630,000	1,220,000
Philadelphia . . .	160,000	580,000	1,100,000	140,000	620,000	870,000
San Francisco . . .	320,000	720,000	1,050,000	400,000	750,000	1,060,000
New Orleans . . .	50,000	450,000	770,000	70,000	520,000	770,000
Various . . .	560,000	2,200,000	3,390,000	780.000	2,510,000	4,300,000
Total . .	3,830,000	9,140,000	13,310,000	4,160,000	9,340,000	13,670,000

The following table of steamboat traffic was published in 1881 for the preceding year :—

	Steamers	Tonnage	Passengers	Goods, Tons	Earnings, £	Wages, £
Lakes	947	222,000	1,420,000	4,380,000	2,520,000	690,000
Mississippi	681	132,000	2,710,000	4,820,000	2,460,000	790,000
Ohio	473	107,000	4,030,000	2,410,000	1,580,000	585,000
New England . . .	463	119,000	15,470,000	2,630,000	1,620,000	560,000
Middle States . . .	1,459	433,000	135,720,000	7,190,000	6,660,000	1,830,000
Gulf	1,116	208,000	9,160,000	4,110,000	2,870,000	965,000
Total . .	5,139	1,221,000	168,510,000	25,540,000	17,710,000	5,420,000

The crews mustered 57,100 men, their wages averaging £85. The steamers carried merchandise 21 times their own tonnage, besides passengers. Each steamer carried in the year 33,000 passengers and 5000 tons of merchandise. One tug on the Mississippi can convey in six days, from St. Louis to New Orleans, boats carrying 10,000 tons of grain, which would require 70 railway trains of 15 waggons each.

The official return of wrecks and casualties shows :—

	Tonnage of Vessels			
	Lost		Damaged	
	1880	1889	1880	1889
Atlantic . . .	31,000	50,000	207,000	266,000
Lakes . . .	11,000	13,000	111,000	146,000
Various . . .	68,000	63,000	187,000	178,000
Total . .	110,000	126,000	505,000	590,000

	Loss, £ Sterling		Loss of Lives	
	1880	1889	1880	1889
Atlantic . . .	600,000	980,000	110	144
Lakes . . .	250,000	250,000	29	9
Various . . .	1,050,000	1,130,000	330	459
Total . .	1,900,000	2,360,000	469	612

CANADA

The merchant navy has grown in tonnage very rapidly, viz. :—

Year	Steam	Sail	Total	Carrying Power
1841	5,000	345,000	350,000	365,000
1866	28,000	727,000	755,000	840,000
1877	77,000	1,233,000	1,310,000	1,540,000
1888	207,000	880,000	1,087,000	1,710,000

Although there has been a decline of 220,000 nominal tonnage in the last eleven years, there is an actual increase of 170,000 tons in carrying power owing to steamers taking the place of sailing vessels. Port entries of the high seas show the following tonnage :—

Year	Tons	Year	Tons
1829 . . .	430,000	1880 . . .	3,690,000
1860 . . .	2,650,000	1885 . . .	3,840,000
1870 . . .	3,150,000	1888 . . .	4,620,000

Of the entries in 1888 there were 35 per cent. in ballast.

The provinces which owned the shipping of the Dominion in 1888 were :—

	Vessels	Tons
Nova Scotia . . .	2,851	486,000
New Brunswick . .	1,009	240,000
Quebec	1,498	180,000
Ontario	1,330	140,000
Various	454	44,000
Total . .	7,142	1,090,000

AUSTRALIA

The tonnage of entries at various dates was as follows :—

Year	Sydney	Melbourne	Various	Total
1822 . . .	57,000	...	17,000	74,000
1841 . . .	178,000	...	98,000	276,000
1851 . . .	146,000	120,000	278,000	544,000
1861 . . .	373,000	545,000	528,000	1,446,000
1871 . . .	750,000	678,000	770,000	2,198,000
1888 . . .	2,383,000	2,154,000	2,808,000	7,350,000

The average size of vessels has increased very notably, viz. :—

Year	Vessels	Tons	Tons per Vessel
1841 . . .	1,288	276,000	214
1851 . . .	2,670	544,000	204
1861 . . .	5,383	1,446,000	269
1871 . . .	6,866	2,198,000	320
1881 . . .	8,350	4,752,000	570
1888 . . .	9,306	7,345,000	790

The tonnage of port entries for the several Colonies was :—

	1860	1871	1888
New South Wales .	430,000	750,000	2,380,000
Victoria . . .	590,000	680,000	2,150,000
South Australia .	105,000	190,000	999,000
New Zealand . .	140,000	270,000	530,000
Queensland . .	40,000	140,000	500,000
Tasmania . . .	115,000	110,000	390,000
Western Australia .	60,000	60,000	410,000
Total . .	1,480,000	2,200,000	7,350,000

OTHER COLONIES

Port entries at various dates showed tonnage approximately thus :—

	1860	1870	1880	1887
India . . .	1,470,000	2,005,000	2,850,000	3,580,000
Singapore .	680,000	820,000	2,400,000	4,180,000
Ceylon . .	400,000	710,000	1,450,000	2,070,000
Mauritius .	300,000	230,000	270,000	310,000
Hong-Kong .	780,000	1,320,000	3,040,000	4,580,000
South Africa	290,000	210,000	1,005,000	1,070,000
West Indies	540,000	770,000	1,785,000	3,130,000
Gibraltar .	980,000	1,480,000	3,220,000	5,250,000
Malta . .	930,000	1,490,000	3,070,000	3,410,000
Various . .	410,000	920,000	1,190,000	1,760,000
Total .	6,780,000	9,955,000	20,280,000	29,340,000

CHILI

The merchant navy is made up thus :—

	Vessels	Tons
Steam	38	19,000
Sail	139	58,000
Total . .	177	77,000

Tonnage of entries was as follows :—

Year	Chilian	Foreign	Total
1878 . . .	150,000	1,070,000	1,220,000
1888 . . .	250,000	1,820,000	2,070,000

There is a very large coasting trade, the entries of which amount to 6,700,000 tons yearly.

ARGENTINA

Port entries showed tonnage as follows :—

Flag	1872	1882	1886
Argentine . . .	159,000	240,000	1,150,000
British	361,000	342,000	960,000
French	146,000	202,000	430,000
Italian	131,000	125,000	215,000
German . . .	57,000	90,000	240,000
Spanish . . .	9,000	40,000	30,000
Various	251,000	174,000	490,000
Total . .	1,114,000	1,213,000	3,515,000

The total sea-going and coast entries in 1886 had tonnage thus :—

At	Sea-Going	Coast	Total
Buenos Ayres . .	1,590,000	810,000	2,400,000
Rosario . . .	410,000	580,000	990,000
Concordia . . .	220,000	25,000	245,000
Concepcion . .	180,000	65,000	245,000
Gualeguaychu .	170,000	10,000	180,000
Various . . .	945,000	620,000	1,565,000
Total . .	3,515,000	2,110,000	5,625,000

The high-seas entries in 1888 were as follows :—

	With Cargo	In Ballast	Total
Sail	1,160,000	40,000	1,200,000
Steam	2,640,000	1,040,000	3,680,000
Total . .	3,800,000	1,080,000	4,880,000

Tonnage of vessels cleared showed thus :—

	With Cargo	In Ballast	Total
Sail	270,000	730,000	1,000,000
Steam	2,280,000	1,030,000	3,310,000
Total . .	2,550,000	1,760,000	4,310,000

URUGUAY

Tonnage of port entries was as follows :—

Year	Uruguayan	Foreign	Total
1876 . . .	2,000	1,080,000	1,082,000
1888 . . .	1,000	1,620,000	1,621,000

In 1888 the returns of entries showed :—

At	Vessels	Tons
Montevideo . .	1,357	1,620,000
Other ports . .	3,540	1,550,000
Total . .	4,897	3,170,000

All the trade of the high seas was done at Montevideo ; the other ports had only coast traffic.

CHINA

Port entries had the following tonnage :—

Year	Chinese	Foreign	Total
1878 . . .	3,000	1,540,000	1,543,000
1888 . . .	93,000	2,737,000	2,830,000

The above was the traffic of the high seas : the total of tonnage entered and cleared, including coast trade, in 1888 was as follows :—

	Vessels	Tons
British . . .	15,115	14,070,000
Chinese . . .	9,054	5,740,000
German . . .	2,762	1,570,000
Various . . .	1,230	928,000
Total . .	28,161	22,308,000

Of the total tonnage, 95 per cent. was steam.

The tonnage of entries only in 1889 (sea-going and coast trade) showed as follows :—

British	7,500,000
Chinese	3,000,000
Various	1,300,000
Total . .	11,800,000

JAPAN

The tonnage of the merchant navy was as follows :—

Year	Steam	Sail	Total	Carrying Power
1878	44,000	20,000	64,000	196,000
1887	72,000	61,000	133,000	350,000

Port entries showed tonnage as follows :—

Year	Japanese	Foreign	Total
1881 . . .	130,000	470,000	600,000
1888 . . .	230,000	1,100,000	1,330,000

Entries in 1888 were as follows :—

Port	Tons	Flag	Tons
Nagasaki . . .	640,000	British . . .	590,000
Yokohama . .	420,000	German . . .	220,000
Kobè	260,000	American . .	130,000
Various . . .	10,000	Various . . .	390,000
Total . .	1,330,000	Total . .	1,330,000

ALGERIA

In 1886 the port entries were as follows :—

Flag	Vessels	Tons	Crew
French	2,001	1,170,000	63,300
British	580	510,000	12,200
Spanish . . .	1,581	150,000	17,800
Various . . .	800	150,000	7,500
Total . .	4,962	1,980,000	100,800

In 1888 the entries reached 2,170,000 tons.

SICKNESS

Neison and Finlayson (contributions to *Vital Statistics*) find that two persons are constantly sick for one death during the year. The Board of Health of Massachusetts finds that each inhabitant loses 13 days yearly by sickness. According to Dr. Farr at the State Congress of 1860, you may expect to find 2 per cent. of people aged 30, and 10 per cent. of those aged 75 constantly sick any day of the year. Sir William Wilde found 2¼ per cent. of the people of Dublin confined to bed. International statistics of sickness are only to be found in the armies of the different powers. The following table, published in 1875, is for various years, showing the annual averages thus :—

	Loss of Days per Soldier	Men in Hospital per 1000	Invalided per 1000
British	18	50	36
French	18	47	7
German . . .	15	41	23
Austrian . . .	13	36	21
Italian	15	40	...
Portuguese . .	13	34	...
Belgian . . .	18	51	9
United States .	21	58	25
Do. coloured	19	53	...
Russian . . .	28	78	...

In the Crimean war the hospital entries of British and French were :—

Cause	Number		Ratio	
	British	French	British	French
Wounds . , .	18,300	116,000	11.3	26.7
Fever, &c. . .	144,400	320,000	88.7	73.3
Total . .	162,700	436,000	100.0	100.0

At the siege of Metz the French in hospital averaged 17,000 men, being more than 10 per cent., the garrison numbering 168,000. Towards the close of the siege, when the garrison was only 105,000, there were 21,000 in hospital.

In the American war of 1861-65, the Federal army enrolled 2,252,000 men, of whom 179,000 were coloured, and the average strength was 431,000 men : the average number in hospital was 37,000 or 9 per cent.

The following table shows the distribution of sickness according to months in various places as judged by hospital entries :—

	Paris	Rome	Algiers	Geneva
January . . .	101	99	65	116
February . . .	102	114	48	112
March . . .	132	85	49	121
April . . .	125	71	71	108
May	114	60	70	110
June	97	48	113	95
July	85	81	170	93
August . . .	80	150	138	98
September . .	102	139	134	89
October . . .	91	121	164	83
November . .	86	128	107	88
December. . .	85	104	71	87
Year . . .	1,200	1,200	1,200	1,200

UNITED KINGDOM

Finlayson's tables as regards the sick ratios at various ages in England give the following results, that is, the percentage who become sick during the year, the duration

of sickness, and the loss in days on the whole number of workpeople at each age :—

Age	Per Cent. Sick		Days of Illness		Loss of Days on Whole Number	
	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor
20	24.6	26.2	27	25	6.6	7.0
25	22.5	23.7	29	28	6.4	6.7
30	21.0	22.7	31	30	6.5	6.8
35	21.2	22.3	32	31	6.8	6.9
40	21.9	23.5	35	36	7.6	8.0
45	22.8	23.7	39	39	8.9	9.1
50	25.6	25.0	44	46	11.3	11.3
55	28.5	26.5	52	47	14.9	12.5
60	30.8	29.1	61	55	18.7	16.5
65	35.5	32.5	75	76	26.6	24.8

The ratio of sick has naturally declined with death-rate, the tables published in 1870 for England and Wales comparing with those of 1845 as follows :—

Days of Sickness per Inhabitant.

Age	Urban		Rural		All England		Scotland
	1845	1870	1845	1870	1845	1870	1845
21–30 . .	6.3	5.6	6.0	5.4	6.1	5.5	6.0
31–40 . .	11.4	7.1	6.4	7.1	8.9	7.1	6.2
41–50 . .	13.4	11.2	9.0	10.4	11.2	10.8	9.5
51–60 . .	23.2	20.3	17.8	20.1	20.5	20.2	19.9
40 years .	13.8	11.1	9.8	10.7	11.7	10.9	10.4

The Census returns taken of sickness in Ireland show thus :—

Diseases	Sick per 10,000 Inhabitants			
	1851	1861	1871	Medium
Zymotic . . .	53	17	9	26
Brain . .	37	50	58	48
Respiratory .	16	16	17	16
Various . .	53	48	48	50
Total .	159	131	132	140

FRANCE

A report was published in 1856 showing the working during three years of friendly societies among workmen, that is, the percentage falling sick during the year, the duration of illness, and the loss in days on the whole number of workers of each age, viz. :—

Age	Sick Percentage	Days of Illness	Loss of Days on Whole Number
16–35 . . .	29.0	17	4.9
36–55 . . .	30.0	21	6.2
56–75 . .	33.0	27	9.2

Another report in 1886 for fifteen years gave the following averages, that is, the ratio falling sick during each year, and the average duration of illness :—

Period	Percentage Sick		Days of Illness	
	Men	Women	Men	Women
1871–80 . . .	26.0	29.0	20	14
1881–85 . . .	26.0	27.0	18	13
15 years . . .	26.0	28.3	19	13⅓

The number of convicts sent to hospital daily in ten years ending 1880, that is, the ratio per 100,000 of each class, was as follows :—

Year in Prison	Per 100,000	
	Male	Female
First	154	136
Second . . .	170	154
Third	190	190
Fourth . . .	220	172
Fifth	190	220
Over fifth . . .	160	150

GERMANY

Mr. Heym's investigations during twenty years down to 1870 at Leipzig, resulted in the following percentage of persons sick during the year, the average length of illness, and the loss of days in each year from illness, to the whole population of each age :—

Age	Per Cent. Sick in Year		Days of Illness		Loss of Days in Whole Number	
	Men	Women	Men	Women	Men	Women
15–24	26.5	18.8	23	27	6.0	5.1
25–34	21.4	17.7	25	36	5.4	6.4
35–44	22.0	18.0	32	41	7.0	7.4
45–54	21.4	17.5	38	43	8.1	7.6
55–64	26.5	20.0	54	57	14.4	14.6
65–74	32.7	18.0	58	48	19.0	8.6
General average }	22.1	18.1	31	39	6.8	8.7

The associated clubs of workmen and others in Germany showed the number of sick during the year and other particulars as follows :—

	1885	1886
Associates . . .	4,294,000	4,570,000
Sick in year . .	1,805,000	1,713,000
Constantly sick . .	69,400	71,400

The loss by sickness was less than six days on the whole number, namely, 5.9 in 1885, and 5.7 in 1886, which is much less than the average in Dr. Heym's table ; but his probably includes older people.

SILK

The consumption of silk and the approximate value of manufactures are shown as follows :—

	Annual Average, Lbs. Silk		Value of Manufactures, £	
	1861–70	1881–87	1861–70	1881–87
U. Kingdom	4,900,000	3,200,000	9,600,000	6,400,000
France . .	15,000,000	14,800,000	29,800,000	29,400,000
Germany .	2,100,000	6,800,000	4,100,000	14,500,000
Russia . .	300,000	900,000	600,000	1,800,000
Austria . .	1,100,000	1,800,000	2,000,000	3,700,000
Italy . . .	1,000,000	800,000	2,100,000	1,600,000
Spain. . .	300,000	600,000	600,000	1,200,000
Switzerland	1,600,000	3,100,000	3,300,000	6,000,000
Europe . .	26,300,000	32,000,000	52,100,000	64,600,000
U. States .	1,200,000	3,500,000	2,500,000	7,200,000
China . .	12,000,000	12,000,000	18,000,000	18,000,000
Japan . .	3,300,000	3,300,000	7,000,000	6,000,000
Other countries }	1,200,000	1,200,000	2,400,000	2,200,000
Total .	44,000,000	52,000,000	82,000,000	98,000,000

The annual production is estimated at 300,000 tons of cocoons or 52,000,000 lbs. raw silk, viz. :—

	Lbs.
China	21,000,000
Japan	6,800,000
Italy	10,600,000
France, Turkey, &c. . . .	13,600,000
Total . .	52,000,000

UNITED KINGDOM

Silk has been manufactured since the time of Edward III., the industry having been introduced by some French prisoners after the battle of Crecy. The consumption of raw silk since 1770 has been as follows :—

Period	Lbs. per Annum	Value of Manu- factures, £
1770–90 . . .	790,000	3,400,000
1800–20 . . .	1,280,000	4,500,000
1836–50 . . .	5,500,000	10,800,000
1851–60 . . .	6,100,000	11,500,000
1861–70 . . .	4,900,000	9,600,000
1871–80 . . .	3,500,000	7,100,000
1881–88 . . .	3,200,000	6,400,000

The imports and exports of silk manufactures were as follows :—

Year	Imports, £	Exports, £	Surplus Imports, £
1854	2,280,000	1,440,000	840,000
1860	3,200,000	1,690,000	1,510,000
1870	15,250,000	1,700,000	13,550,000
1880	13,320,000	2,300,000	11,020,000
1888	10,470,000	3,400,000	7,070,000

The value of silk goods consumed in thirty-five years was as follows :—

Period	Millions £ Sterling Aggregate			Shillings Yearly per Inhabitant
	British	Foreign	Total	
1854–60	70	18	88	10
1861–70	79	91	170	11
1871–80	51	114	165	10
1881–88	32	88	120	8
35 years	232	311	543	...

The balance-sheet since 1840 shows the silk industry thus :—

Period	Millions £ Sterling		
	Raw Silk	Manu- factures	Net Result
1841–50 . . .	65	108	43
1851–60 . . .	68	115	47
1861–70 . . .	55	96	41
1871–80 . . .	32	71	39
1881–88 . . .	18	50	32
48 years . . .	238	440	202

The silk-factories of the United Kingdom were as follows :—

Year	Factories	Operatives	Spindles	Looms
1838 . . .	268	34,000	...	...
1856 . . .	...	56,000	...	8,000
1870 . . .	696	48,000	1,130,000	12,400
1885 . . .	691	43,000	1,060,000	12,000

The Census returns show still more emphatically the decline of this industry, viz. :—

Silk Operatives in England and Wales

Year	Number	Year	Number
1841 . . .	54,000	1871 . . .	77,000
1851 . . .	117,000	1881 . . .	64,000

The use of silk decreases notwithstanding the increase of wealth.

FRANCE

The consumption of silk has been approximately as follows :—

Period	Raw Silk, Lbs. Yearly			Value of Manu- factures, £
	French	Imported	Total	
1830–32	1,620,000	1,140,000	2,760,000	5,200,000
1842–46	2,770,000	4,070,000	6,840,000	12,700,000
1850–52	3,830,000	6,370,000	10,200,000	18,200,000
1868–73	1,200,000	15,400,000	16,600,000	34,600,000
1881–87	1,200,000	13,600,000	14,800,000	29,400,000

The output of the factories was approximately as follows :—

Period	Millions £ Sterling Aggregate		
	Exported	Home Use	Total
1831–40 . . .	33	47	80
1841–50 . . .	70	70	140
1851–60 . . .	110	90	200
1861–70 . . .	168	130	298
1871–80 . . .	138	150	288
1881–87 . . .	70	136	206
57 years . . .	589	623	1,212

The value of silk manufactures consumed in France was approximately as follows :—

Period	Millions £ Sterling Aggregate			Shillings Yearly per Inhabitant
	French	Imported	Total	
1831–40 . . .	47	...	47	3
1841–50 . . .	70	...	70	4
1851–60 . . .	90	...	90	5
1861–70 . . .	130	10	140	8
1871–80 . . .	150	15	165	9
1881–87 . . .	136	14	150	11
57 years . . .	623	39	662	...

About the year 1620 the mulberry tree was first cultivated for the rearing of silkworms, and in 1780 the cocoons weighed 6600 tons, valued at £660,000 sterling. The farmers have recently been cutting down the mulberry trees for fuel, as the following table shows :—

Year	Mulberry Trees	Cocoons, Tons	Lbs. Silk Produced
1810 . . .	...	3,900	770,000
1820 . . .	9,632,000	5,230	1,010,000
1835 . . .	14,880,000	9,010	1,950,000
1853 . . .	...	26,100	4,300,000
1884 . . .	6,100,000	9,700	1,600,000

The price of cocoons was 1s. per lb. in the 18th century, and rose to 2s. about 1850. A few years later a disease carried off two-thirds of the silkworms, which were badly housed and overcrowded, causing the cocoons to rise to 4s. ; but the price fell owing to large importations, and is now hardly remunerative. In 1884 the total yield of cocoons sold for £1,500,000, and was divided among 141,400 cultivators, giving a little over £10 to each.

The balance-sheet of the silk industry since 1830 was approximately as follows :—

Period	Millions £ Sterling Aggregate		
	Raw Silk	Manufactures	Net Result
1831-40 . . .	48	80	32
1841-50 . . .	86	140	54
1851-60 . . .	120	200	80
1861-70 . . .	166	298	132
1871-80 . . .	125	288	163
1881-87 . . .	72	206	134
57 years . . .	617	1,212	595

In the 18th century Lyons counted 15,000 silk-factories, but the industry suffered so much during the Revolution that in 1800 there were only 3500 left. It revived in later years, Lyons consuming one-sixth of the silk crop of the world, or 50,000 tons of cocoons, one-half of which was imported from Italy until the recent rupture of commercial relations. In 1840 the silk-factories had 1790 steam-engines, of 36,000 aggregate horse-power. In 1866 France had 1172 mills, with 110,000 operatives, 1,080,000 spindles, and 50,000 power-looms, turning out silks to the value of 29 millions sterling.

GERMANY

In 1800 Oddy valued the silk manufactures of Prussia at £700,000 a year, and in 1840 the factories had 14,000 operatives with 12,000 looms, consuming 700,000 lbs. of raw silk per annum, the output being valued at £1,600,000 sterling. The consumption of raw silk in all Germany was approximately as follows :—

Period	Lbs. Yearly	Value of Manufactures, £
1841-50 . . .	1,100,000	2,200,000
1851-60 . . .	1,500,000	3,000,000
1861-70 . . .	2,100,000	4,100,000
1871-80 . . .	4,200,000	8,500,000
1881-87 . . .	6,800,000	14,500,000

The consumption and export were approximately thus :—

Period	Average per Annum		
	Home Use	Exported	Total Make
	£	£	£
1873-80 . . .	4,900,000	3,600,000	8,500,000
1881-87 . . .	5,800,000	8,700,000	14,500,000

The balance-sheet of the industry was approximately as follows :—

Period	Millions £ Sterling Aggregate		
	Raw Silk	Manufactures	Net Result
1841-50 . . .	13	22	9
1851-60 . . .	18	30	12
1861-70 . . .	23	41	18
1871-80 . . .	40	85	45
1881-87 . . .	38	102	64
47 years . . .	132	280	148

In 1884 the silk-factories counted 87,000 operatives, the chief seat of this industry being Crefeld, in Prussia.

RUSSIA

In 1828 Schubert found 184 silk-factories, the output of which he estimated much too high, at £800,000. In

1864 Buschen counted 326 factories, with 9000 operatives. The consumption of silk was as follows :—

Period	Lbs.	Value of Manufactures, £
1861-70	330,000	600,000
1871-80	580,000	1,200,000
1881-87	900,000	1,800,000

The consumption of silk manufactures was as follows :—

Period	Yearly Average			Pence per Inhabitant
	Russian	Imported	Total	
	£	£	£	
1861-70 . .	600,000	500,000	1,100,000	4
1871-80 . .	1,200,000	400,000	1,600,000	5
1881-87 . .	1,800,000	200,000	2,000,000	6

The balance-sheet of the industry was approximately as follows :—

Period	Millions £ Sterling Aggregate		
	Raw Silk	Manufactures	Net Result
1861-70 . . .	4	6	2
1871-80 . . .	6	12	6
1881-87 . . .	5	13	8
27 years . . .	15	31	16

According to the *Bulletin Statistique* for 1884, Russia had 20,000 operatives engaged in silk-factories, turning out goods to the value of three millions sterling per annum ; but this estimate is too high ; probably paper roubles were mistaken for silver.

AUSTRIA

In 1834 the Empire counted 3990 silk-factories, with 160,000 operatives, producing manufactures worth £3,000,000 per annum ; but this included the Italian provinces. The consumption of silk since 1860 has been as follows :—

Period	Lbs. Yearly			Value of Manufactures, £
	Imported	Native	Total	
1861-70 . .	800,000	300,000	1,100,000	2,000,000
1871-80 . .	1,100,000	300,000	1,400,000	2,800,000
1881-87 . .	1,540,000	300,000	1,840,000	3,700,000

The consumption of silk manufactures was as follows :—

Period	Yearly Average, £			Pence per Inhabitant
	Austrian	Imported	Total	
1861-70 . .	2,000,000	300,000	2,300,000	17
1871-80 . .	2,800,000	1,100,000	3,900,000	26
1881-87 . .	3,700,000	300,000	4,000,000	25

The balance-sheet of the industry may be summed up thus :—

Period	Millions £ Aggregate		
	Raw Silk	Manufactures	Total
1861-70 . . .	11	20	9
1871-80 . . .	14	28	14
1881-87 . . .	10	26	16
27 years . . .	35	74	39

In 1884 the factories had 15,000 operatives engaged in this industry.

ITALY

Silk is one of the most valuable of Italian products, the exportation averaging 10 millions sterling per annum. Lombardy is the chief seat of silk-growing, and until recently 90 per cent. of the quantity was from Japanese eggs imported on cards from Japan. These cards are worth 7s. per ounce, or £12,000 a ton, about ten tons being now imported yearly. Formerly the eggs yielded 50 lbs. cocoons per ounce, but latterly only 35 lbs., representing a value of 50s., or seven times the original cost of the eggs. The province of Lombardy raises yearly 11,000 tons of cocoons, worth £200 a ton.

There are factories for throwing silk at Milan and Turin, and some of the fibre is consumed at home for velvets and damasks, but the greatest part is usually exported to France for the Lyons factories. The production and export of silk approximated yearly as follows :—

Period	Production, Lbs.	Export, Lbs.	Home Use, Lbs.
1861–70 . . .	5,600,000	4,600,000	1,000,000
1871–80 . . .	7,400,000	6,600,000	800,000
1881–87 . . .	10,600,000	9,800,000	800,000

The import and export of manufactured silks were as follows :—

Period	Yearly Average		Surplus Imports, £
	Import, £	Export, £	
1861–70 . . .	400,000	220,000	180,000
1871–80 . . .	880,000	600,000	280,000
1881–87 . . .	960,000	600,000	360,000

The consumption of silk manufactures was as follows :—

Period	Yearly Average			Pence per Inhabitant
	Italian	Imported	Total	
	£	£	£	
1861–70 . .	2,000,000	180,000	2,180,000	23
1871–80 . .	1,600,000	280,000	1,880,000	20
1881–87 . .	1,600,000	360,000	1,960,000	18

The value of silk industry to Italy may be summed up thus :—

Period	Millions £ Sterling Aggregate					
	Cost of Japan Eggs	Silk Exported	Manufactures	Total Product	Deduct Eggs	Net Product
1861–70 . . .	10	84	20	104	10	94
1871–80 . . .	8	122	16	138	8	130
1881–87 . . .	2	80	11	91	2	89
27 years . . .	20	286	47	333	20	313

In 1878 Italy had 2030 silk-factories, with 2,100,000 spindles, giving employment to 16,000 men ; there were also 120,000 women and 76,000 children engaged in attending to the silk-worms.

In 1840 the kingdom of Sardinia had several silk-factories, with an aggregate of 14,900 operatives. The cocoon crop of Italy for the years 1881–88 averaged 86 million pounds.

SPAIN

Silk manufacture flourished under the Moors for some centuries before the industry was known in France. It even survived their expulsion, for Seville had 16,000 silk-looms in 1550, but a hundred years later there were only sixty. Coming down to our own time, we find that in 1870 Spain had silk-factories with an aggregate of 3000 looms and 9000 operatives ; the number of the latter in 1884 was only 8000, and the output was valued at £1,000,000 in the *Bulletin Statistique*, although Spanish writers (prone to exaggerate) claim a value of £2,800,000 sterling. The silkworm thrives in the south, the production of native silk averaging 300,000 lbs. yearly.

The consumption in the factories averaged as follows :—

Period	Silk, Lbs. Yearly			Value of Manufactures, £
	Spanish	Imported	Total	
1861–70 . .	300,000	...	300,000	600,000
1871–80 . .	300,000	140,000	440,000	900,000
1881–87 . .	300,000	290,000	590,000	1,200,000

The consumption of silk manufactures was as follows :—

Period	Yearly Average			Pence per Inhabitant
	Spanish	Imported	Total	
	£	£	£	
1861–70 . .	600,000	300,000	900,000	15
1871–80 . .	900,000	200,000	1,100,000	17
1881–87 . .	1,200,000	400,000	1,600,000	22

The balance-sheet of the industry was approximately as follows :—

Period	Millions £ Aggregate		
	Raw Silk	Manufactures	Net Product
1861–70 . . .	3	6	3
1871–80 . . .	4	9	5
1881–87 . . .	3	8	5
27 years . . .	10	23	13

BELGIUM

Silk manufacture is declining, the average consumption since 1880 being only 400,000 lbs. raw silk yearly, and the output of the mills £800,000. Belgium, moreover, consumes imported silk goods to the value of £400,000 a year.

SWITZERLAND

Silk manufacture holds the foremost rank in Switzerland, the output averaging six millions sterling, nearly all of which is exported.

UNITED STATES

The Census returns show as follows :—

Year	Factories	Operatives	Capital, £	Manufactures, £
1850	67	2,000	200,000	400,000
1870	86	7,000	1,000,000	2,000,000
1880	382	31,000	4,000,000	7,300,000

The consumption of silk was as follows :—

Period	Lbs. Yearly	Value of Textures, £
1861–70 . . .	1,200,000	2,500,000
1871–80 . . .	1,400,000	3,000,000
1881–87 . . .	3,500,000	7,200,000

The value of all silk manufactures consumed was :—

| Period | Yearly Average | | | Shillings per Inhabitant |
	American, £	Imported, £	Total, £	
1861–70	2,500,000	3,100,000	5,600,000	3
1871–80	3,000,000	5,100,000	8,100,000	4
1881–87	7,200,000	6,800,000	14,000,000	5

The balance-sheet was approximately as follows :—

| Period | Millions £ Aggregate | | |
	Raw Silk	Manufactures	Net Result
1861–70 . . .	14	25	11
1871–80 . . .	15	30	15
1881–87 . . .	20	50	30
27 years . . .	49	105	56

CHINA

Silk is known to have been cultivated for 3000 years, the best coming from the province of Kwantung. The ordinary crop is 21,000,000 lbs., of which 60 per cent. is consumed in China. The quantities exported have been :—

Period	Annual Average, Lbs.
1873–80	9,300,000
1881–87	8,100,000

The values of all silk exports have been as follows :—

Period	Raw Silk £ Yearly	Manufactures £ Yearly	Total £ Yearly
1873–80 . . .	3,900,000	700,000	4,600,000
1881–87 . . .	3,100,000	800,000	3,900,000

About 60 per cent. of the raw silk exported is from Shanghai, and 50 per cent. of manufactured silks from Canton.

JAPAN

Official returns for the years 1884–87 show an average production of 6,800,000 lbs. raw silk, disposed of in this manner :—

	Lbs.	Value, £
Home manufacture .	3,300,000	6,000,000
Exported raw . . .	3,500,000	2,400,000
Total . .	6,800,000	8,400,000

Of the silk goods manufactured in the country, about £250,000 worth is exported yearly, the rest consumed in Japan.

TURKEY

The annual production of silk averages about 1,200,000, lbs., of which five-sixths are exported.

The value of silk and cocoons exported in 1888 was £1,100,000 sterling. Local manufactures probably attain a value of £350,000 per annum.

INDIA

The imports and exports of raw silk have been :—

| Period | Annual Average, Lbs. | | | |
	Imports	Exports	Surplus Imports	Surplus Exports
1867–70 . .	1,800,000	2,300,000	...	500,000
1871–75 . .	2,100,000	2,200,000	...	100,000
1876–80 . .	2,000,000	1,600,000	400,000	...
1881–88 . .	2,100,000	1,600,000	500,000	...

The value of silk manufactures imported and exported was as follows :—

| Period | Annual Average | | |
	Imports, £	Exports	Surplus Imports, £
1867–70 . . .	450,000	120,000	330,000
1871–80 . . .	660,000	210,000	450,000
1881–88 . . .	1,300,000	320,000	980,000

The value of Indian silk manufactures is unknown.

SLAVERY

In ancient Greece and Rome the ordinary wages of a slave and his market value were as follows :—

GREECE

	Day's Wage, Pence	Value, £
Labourer	6	56
Farmer . . .	10	103
Cutler	8	77
Boatman	6	60

ROME

	Day's Wage, Pence	Value, £
Gardener	8	65
Carpenter	20	148
Blacksmith . . .	20	145
Shepherd	6	51
Baker	19	140
Cook	...	430
Actress	...	820
Physician	...	1,100

Some of the wealthy Romans had 10,000 slaves. After great victories they could often be bought for a few shillings on the battle-field.

SLAVE-TRADE

The *Journal des Economistes* gives the following table of the number of slaves shipped from Africa in sixty years ending 1847 :—

Period	Shipped	Died	Landed in America
1788–98 . . .	100,000	14,000	86,000
1798–1805 . .	85,000	12,000	73,000
1805–15 . . .	178,000	25,000	153,000
1815–30 . . .	441,000	110,000	331,000
1830–40 . . .	214,000	54,000	160,000
1840–47 . . .	444,000	112,000	332,000
60 years . . .	1,462,000	327,000	1,135,000

About 22 per cent. perished on the voyage.

There are no records of the number of slaves carried by English and other dealers in the 16th, 17th, and 18th centuries to America, but it is believed to exceed 3,000,000, the Treaty of Utrecht securing great advantages in 1713 to the British flag in this trade. The records for the year 1787 showed the number of African slaves landed alive in America as follows :—

Carried by	Number
British	38,000
French	31,000
Portuguese	25,000
Dutch, Danes, &c.	6,500
Total . .	100,500

The Danes were the first to abolish slavery in their West Indian islands. The emancipation of slaves in the

British West Indies and other colonies in 1834 gave liberty to 780,000, viz. :—

	Number	Indemnity, £	Per Head, £
Jamaica	311,700	6,152,000	20
Barbadoes . . .	83,000	1,721,000	21
Trinidad	22,300	1,039,000	50
Antigua, &c. . . .	172,093	3,421,000	20
Guiana	84,900	4,297,000	53
Mauritius	68,600	2,113,000	31
Cape of Good Hope	38,400	1,247,000	33
Total . .	780,993	20,000,000	26

The difference paid per head in the above colonies is very remarkable.

The French freed their West Indian slaves in 1848, the Dutch in 1863, the latter emancipating 46,000 at £32 per head paid to their masters.

Slavery was abolished in the United States in 1861, the number of slaves in that country having been as follows :—

Year			Number	Year			Number
1790	.	.	697,900	1830	.	.	2,009,030
1800	.	.	893,040	1840	.	.	2,487,500
1810	.	.	1,191,400	1850	.	.	3,204,300
1820	.	.	1,538,100	1860	.	.	3,979,700

The number of slaves in the several States was as follows :—

	1790	1820	1840
Virginia	293,000	425,000	449,000
South Carolina . .	107,000	258,000	327,000
North Carolina . .	101,000	205,000	246,000
Maryland	103,000	107,000	90,000
Georgia	29,000	150,000	281,000
Kentucky	11,000	127,000	182,000
Tennessee . . .	....	80,000	183,000
Louisiana	....	69,000	168,000
Alabama	....	47,000	254,000
Mississippi . . .	....	33,000	195,000
Various	54,000	37,000	111,000
Total . . .	698,000	1,538,000	2,486,000

The proportion of slaves in the total coloured population was as follows :—

Year	Coloured Population	Slaves	Slave Ratio per Cent.
1790 . . .	757,000	698,000	92
1820 . . .	1,772,000	1,538,000	86
1840 . . .	2,874,000	2,486,000	87
1850 . . .	3,639,000	3,204,000	88
1860 . . .	4,486,000	3,980,000	89

The slave ratio was steadily increasing for forty years until the war of emancipation in 1860, which (besides 655,000 men killed) cost an outlay of 555 millions sterling, equal to £140 per slave. In the French island of Guadaloupe slaves formed two-thirds of the population just before the emancipation in 1848, viz. :—

	1781	1833	1847
Free	14,800	23,800	38,800
Slaves	83,900	98,600	91,500
Total . .	98,700	122,400	130,300

From 1833 to 1847 the masters had voluntarily manumitted 18,600 slaves, being at the rate of 4 per cent. male, and 7 per cent. female slaves yearly. The annual

birth-rate and death-rate of slaves per 1000 compared with that of the French settlers thus :—

	French Settlers	Slaves
Birth-rate . . .	33.2	24.9
Death-rate . . .	31.4	23.6
Increase of population .	1.8	1.3

Slavery was abolished in Cuba in 1880, in Brazil in 1889. In the latter country, by a previous enumeration, there were found to be 805,000 male and 706,000 female slaves, held by 41,000 owners, the average price being from £80 to £100.

Serfs

The condition of European serfs was a mild form of slavery. In the 18th century Danish noblemen gave their coachmen permission to flog women ; the peasants were bought and sold with the estates like cattle. As regards other countries, the conditions, &c., may be summed up thus :—

AUSTRIA

In 1840 the value of servitude to the nobility was estimated at £51,200,000 a year thus :—

	Value, £
Labour (two days per week) . .	35,000,000
Tithe of crops, &c.	12,000,000
Male tribute, timber . . .	1,400,000
Female tribute, spun wool . . .	1,800,000
Fowls, eggs, butter	1,000,000
	51,200,000

There were 7,000,000 serfs. Some Bohemian nobles had as many as 10,000. The redemption was effected by giving the nobles 5 per cent. Government scrip, and land then rose 50 per cent. in value.

GERMANY

In 1848 the State took 60 million acres from the nobles, leaving them still 25 million acres, and gave the former among the serfs. Indemnity as follows :—

1. Government scrip, £180 for each serf family, to nobleman.
2. Land-tax, £3 per annum, transferred to peasant.
3. Interest, £7 per annum for forty-seven years, to be paid by peasant to the State, being 4 per cent. on cost of redemption.

FRANCE

The Corvée, which prevailed during the Middle Ages, was as follows :—

Each man gave one day's work with a waggon, or two days if he had no waggon, yearly, unpaid, to the State ; each woman one day. The man could commute by paying 2s., the woman 1s.

RUSSIA

Previous to the emancipation of 1861 the number of serfs was as follows :—

	Male	Female	Total
Crown serfs . .	11,168,000	11,683,000	22,851,000
Appanage . . .	1,624,000	1,702,000	3,326,000
Held by nobles .	10,674,000	11,081,000	21,755,000
Total . .	23,466,000	24,466,000	47,932,000

There were 103,000 noblemen holding 22 million serfs in this manner :—

Nobles			Serfs	Average
23,100	.	.	18,575,000	802
36,150	.	.	2,520,000	70
43,800	.	.	660,000	15
103,050	.	.	21,755,000	211

The cost of emancipating these serfs was 65 millions sterling, but as the nobles had already mortgaged them up to 30 millions sterling in the Imperial Bank, the Government deducted this sum. The account was made up thus :—

	£
Mortgages remitted . . .	30,400,000
Russian stock . . .	20,230,000
Paid by serfs . . .	10,470,000
Balance due . . .	3,900,000
Total . . .	65,000,000

The lands are mortgaged to the State until 1912 as security for the advances by Government, viz., £50,630,000 sterling. In 1879 the serfs were holders of 186 millions acres, viz. :—

Title	Holders	Acres
Crown-gift	6,117,000	84,200,000
Appanage	1,625,000	30,200,000
Purchase	10,137,000	65,500,000
Beggar-lots	1,840,000	6,440,000
Total . .	19,719,000	186,340,000

In return for crown-gift the holders have to pay 50 per cent. extra poll-tax till 1902. Beggar-lots are lands given gratis by the nobles to the peasants, rather than sell farm-lots at £1 per acre to them.

ROUMANIA

The emancipation law of 1870 compelled the Boyars either to give the peasant half his farm gratis or to sell the whole at 26s. per acre : 400 Boyars preferred the former. Previously the conditions of servitude were : to work twelve days in the year for the Boyar, to give him one-tenth of the crops, and to buy groceries at the Boyar's store.

EGYPT

Corvée, or compulsory labour, was imposed in 1883 on 202,000 Fellahs, who had to work 100 days unpaid, and in 1888 on 59,000 for the same term.

SMUGGLERS

In 1830 there were 100,000 contrabandistas in Spain, without counting their wives, &c., the total of persons living by smuggling being calculated at 300,000.

SOAP

The production and consumption in the United Kingdom were approximately as follows, the exact consumption not being known since 1853, when the duty was abolished :—

Year	Million Lbs. Manufacture	Million Lbs. Consumption	Million Lbs. Export	Consumption per Inhabitant, Lbs.	Duty per Ton	Price per Ton
1791 . . .	48	46	2	3.1	£21	£76
1801 . . .	57	54	3	3.6	21	74
1811 . . .	76	73	3	4.2	21	73
1821 . . .	98	94	4	4.6	28	68
1831 . . .	123	107	16	4.5	28	52
1841 . . .	199	170	29	6.4	14	48
1851 . . .	217	195	22	7.0	14	40
1861 . . .	254	232	22	8.0	...	27
1871 . . .	...	...	17	...	...	27
1881 . . .	...	...	39	...	...	22

It is believed that the average consumption of soap per inhabitant has doubled since the duty was removed, and now reaches 14 lbs. The quantity manufactured yearly would, therefore, appear to be 260,000 tons, of which 235,000 are consumed in the United Kingdom, and 25,000 exported. The export of soap in recent years has been as follows :—

Year	Tons	Value, £	£ per Ton
1875 . .	12,500	310,000	25
1880 . .	19,500	440,000	22
1885 . .	20,100	470,000	23
1889 . .	25,000	505,000	20

In 1881 France manufactured 255 million lbs., the consumption in that country averaging 6 lbs. per inhabitant.

SOCIETIES

The following table shows approximately the principal features of friendly societies of all descriptions :—

	Societies	Members	Capital, £
Great Britain . .	22,000	7,000,000	58,000,000
France . . .	8,000	1,250,000	5,200,000
Germany . . .	24,000	7,400,000	23,000,000
Russia . . .	500	35,000	300,000
Austria . . .	1,900	870,000	17,000,000
Italy . . .	2,200	330,000	900,000
Switzerland . .	630	100,000	300,000
Belgium . . .	210	30,000	250,000
Denmark . . .	720	90,000	...
Canada . . .	40	80,000	5,100,000
Australia . . .	900	100,000	...

These societies may be said to have sprung up in the last thirty years, possessing at present a paid-up capital of nearly 120 millions sterling.

UNITED KINGDOM

The number of friendly societies registered in 92 years was as follows :—

Period	Number	Yearly Average
1793–1855	26,034	412
1856–73	20,058	1,114
1874–84	7,436	676
92 years	53,528	582

The above is exclusive of building societies and co-operative associations.

The advance of friendly societies in late years is shown thus :—

	1873	1880
Members	1,787,000	4,802,000
Assets, £	8,630,000	13,003,000

The progress of co-operative societies is shown thus :—

Year	Societies	Members	Capital, £	Sales, £
1861 . . .	66	38,000	365,000	1,100,000
1871 . . .	749	249,000	2,530,000	8,200,000
1880 . . .	1,182	604,000	6,200,000	23,200,000
1888 . . .	1,363	935,000	12,800,000	36,700,000

The above figures do not include 115 societies in 1888, which failed to publish particulars.

The returns published for 1888 were as follows :—

	Societies	Members	Capital, £	Sales, £	Profits, £
England	1,020	786,000	10,800,000	28,800,000	2,650,000
Scotland	323	148,000	1,800,000	7,100,000	640,000
Total	1,343	934,000	12,600,000	35,900,000	3,290,000

There are twenty societies in Ireland, but the business done is small. The summary of transactions in Great Britain shows that in twenty-five years down to December 1888, the co-operative societies made sales exceeding 471 millions sterling, leaving a profit of £39,800,000, out of which the societies had made investments which amounted in December 1888 to a value of £5,300,000.

Building societies show the following progress in fourteen years :—

Year	Societies	Members	Receipts, £	Assets, £	Liabilities, £	Net Assets, £
1874	474	270,000	15,900,000	38,800,000	13,500,000	25,300,000
1888	2,545	604,000	20,400,000	53,200,000	15,200,000	38,000,000

The returns for 1888 show as follows :—

	Societies	Members	Receipts, £	Assets, £	Liabilities, £	Net Assets, £
England	2,444	582,900	19,500,000	51,200,000	14,700,000	36,500,000
Scotland	50	9,000	400,000	1,010,000	240,000	770,000
Ireland	51	12,300	530,000	990,000	250,000	740,000
United Kingdom	2,545	604,200	20,430,000	53,200,000	15,190,000	38,010,000

FRANCE

Official returns are to the following effect :—

Year	Societies	Members	Capital, £
1853	2,695	318,000	500,000
1860	4,252	358,000	1,000,000
1870	5,788	849,000	2,100,000
1880	6,777	1,066,000	3,800,000
1885	7,960	1,252,000	5,200,000

The above returns for 1885 include 182,000 honorary members. The sick ratio showed thus :—

	Members	Sick	Sick Ratio
Men	899,000	232,000	25.8
Women	171,000	44,000	25.8
Total	1,070,000	276,000	25.8

The women who were sick showed an average duration of 13 days' illness, the men 18. The death-rate in 1885 was 13.5 per 1000. Receipts, £1,000,000; expenditure, £880,000; surplus, £120,000. Each sick person cost 36 shillings, or 25 pence per day.

GERMANY

Official returns for 1886 show as follows :—

	Societies	Members
Prussia	8,529	2,445,000
Bavaria	4,271	397,000
Saxony	2,188	571,000
Other States	4,250	1,157,000
Total	19,238	4,570,000

Some of the principal trades represented were :—

Textiles	543,000	Pottery	223,000
Ironworks	345,000	Sugar	127,000
Building	590,000	Carpentry	125,000

The total income of the above societies in 1885 was £3,300,000, and their expenditure £2,600,000.

Co-operative societies were begun about 1860, and received a great impulse from Mr. Schultz-Delitsch. Dr. Schenck published a report in 1888 which compares these societies with previous years :—

Year	Societies	Members	Paid Capital, £
1860	133	31,600	80,000
1870	740	314,700	2,200,000
1880	4,920	1,710,000	8,650,000
1888	5,000	2,000,000	15,000,000

The ratio of shareholders from the different classes of society in these companies, and in Schultz's popular banks, showed as follows :—

	Co-operative Companies	Popular Banks
Farmers	27.0	30.0
Artisans	29.0	34.0
Merchants	44.0	36.0
Total	100.0	100.0

In December 1888 the Schultz-Delitsch companies comprised 2200 popular banks and 2620 co-operative societies. The progress of the popular banks appears as follows :—

Year	Shareholders	Capital, £	Advances, £
1859	18,700	370,000	620,000
1887	456,300	5,030,000	39,400,000

Deposits in 1887 amounted to £21,400,000 sterling. The Journeyman's Union, for the support of widows and orphans, had 270,000 members in 1882, with an income of £1,100,000 yearly.

AUSTRIA

In 1889 there were 1916 friendly societies, numbering 609,000 male and 262,000 female members. Only 1064

of these societies published statements, the aggregate of which showed :—

	£
Capital and reserve . . .	17,000,000
Deposits	37,100,000

ITALY

Official returns give the following particulars :—

Year	Societies	Members	Assets, £
1862 . . .	443	111,600	108,000
1873 . . .	1,447	217,900	396,000
1880 . . .	2,188	332,000	845,000

Days lost by sickness in the year average on the whole number of members 4.4, that is, 6.3 on women and 4.1 on men. Average duration of illness, 20 days.

BELGIUM

Official returns are to the following effect :—

Year	Societies	Members	Income, £
1860 . . .	36	6,300	17,000
1880 . . .	179	25,800	39,000
1886 . . .	211	31,700	44,000

There are seven building societies, which have built 1093 houses, containing 5400 rooms, accommodating 8430 persons, at an average rent of £2 yearly per head, or 63s. per room. Income £17,000, expenses £7600, net rental £9400.

AUSTRALIA

In 1873 Victoria had 682 societies with 50,000 members, whose death-rate reached 10 per 1000. Income £152,000, reserve £262,000.

SPIRITS

The consumption in the principal countries at previous dates was as follows :—

	Gallons per Inhabitant						
	1830	1840	1850	1860	1870	1881	1888
United Kingdom	0.95	0.80	0.88	0.95	1.01	1.06	0.96
France	0.26	0.33	0.39	0.51	0.60	0.90	1.10
Germany . . .	...	0.60	...	1.08	...	1.33	1.40
Russia	5.00	...	3.70	4.80	...	2.20	1.10
Sweden . . .	8.80	8.00	8.40	6.00	4.60	4.25	4.20
Denmark . . .	...	7.20	...	5.80	...	4.30	4.30
Belgium . . .	0.96	...	1.26	...	1.90	2.40	2.40
United States .	5.55	3.10	2.50	2.10	1.62	1.50	1.20

The consumption in Russia in 1881 was estimated at 174 million gallons, but the official returns for 1886 only give 91 millions; perhaps illicit distilling may account for the difference.

The manufacture of spirits in England and Wales was as follows :—

Year	Gallons	Duty, Pence	Gallons per Inhabitant
1700 . . .	1,210,000	4	0.22
1720 . . .	2,530,000	4	0.42
1740 . . .	6,715,000	4	1.10
1760 . . .	2,320,000	30	0.33
1780 . . .	2,330,000	30	0.35
1800 . . .	4,410,000	60	0.50
1820 . . .	4,315,000	120	0.36
1830 . . .	7,680,000	90	0.55
1850 . . .	9,620,000	90	0.54
1860 . . .	12,910,000	90	0.65
1870 . . .	11,220,000	120	0.48
1881 . . .	16,930,000	120	0.65

The consumption in the three kingdoms of British and imported spirits was approximately as follows :—

Year	Gallons				Gallons per Inhabitant			
	England	Scotland	Ireland	United Kingdom	England	Scotland	Ireland	United Kingdom
1800 . .	4,350,000	1,280,000	1,330,000	6,960,000	0.51	0.74	0.26	0.45
1810 . .	4,790,000	1,750,000	4,730,000	11,260,000	0.48	0.97	0.80	0.62
1820 . .	4,280,000	1,860,000	3,300,000	9,450,000	0.35	0.92	0.49	0.45
1830 . .	7,730,000	6,010,000	9,005,000	22,745,000	0.55	2.60	1.15	0.95
1840 . .	8,280,000	6,180,000	7,402,000	21,862,000	0.52	2.40	0.90	0.80
1850 . .	9,330,000	7,120,000	7,410,000	23,860,000	0.52	2.43	1.12	0.88
1860 . .	12,910,000	7,890,000	6,400,000	27,200,000	0.65	2.62	1.10	0.95
1870 . .	14,630,000	8,580,000	8,300,000	31,510,000	0.67	2.56	1.55	1.01
1881 . .	21,600,000	8,800,000	6,610,000	37,010,000	0.84	2.35	1.29	1.06
1888 . .	22,400,000	8,400,000	6,300,000	37,100,000	0.77	2.10	1.33	0.96

The consumption of alcohol per head in French cities in 1885 was :—

	Gallons	Gallons per Inhabitant
Paris	3,100,000	1.40
Marseilles . . .	440,000	1.40
Lyons . . .	440,000	1.10
Bordeaux . . .	220,000	1.00
Rouen . . .	300,000	2.70
Havre . . .	350,000	3.30

For further details see *Alcohol*, p. 58.

It is found that one bushel of grain will make 4½ gallons of spirits or 27 gallons of beer, and that 4 bushels of malt are equal to 5 bushels of grain. Thus, a ton of grain produces 180 gallons of spirits, a ton of malt 225 gallons.

SPONGES

On the coast of Syria 300 boats with 1500 divers pick up annually sponges worth £25,000; best worth 40s., inferior, 4s. per lb. Depth, 30 to 150 ft.

Simmonds states the sponge-fisheries as follows :—

	Value, £
West Indies	120,000
Mediterranean	150,000

The quantities imported into Great Britain were :—

	Lbs.
1840	78,000
1855	474,000
1870	840,000

No returns since 1870.

PLATE IX.

STEAM-POWER.

Aggregate horse-power of the world at various dates, in millions.
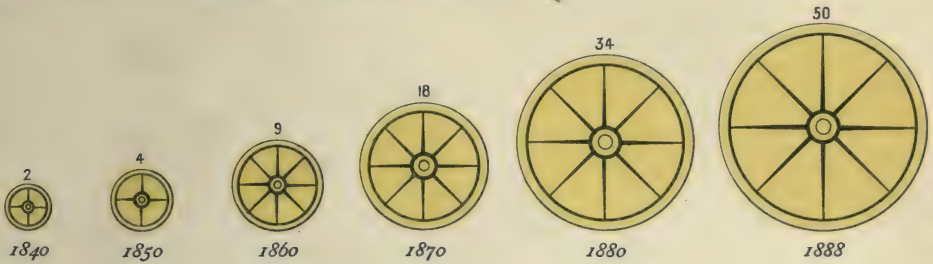
Horse-power of nations, in millions, in 1888.
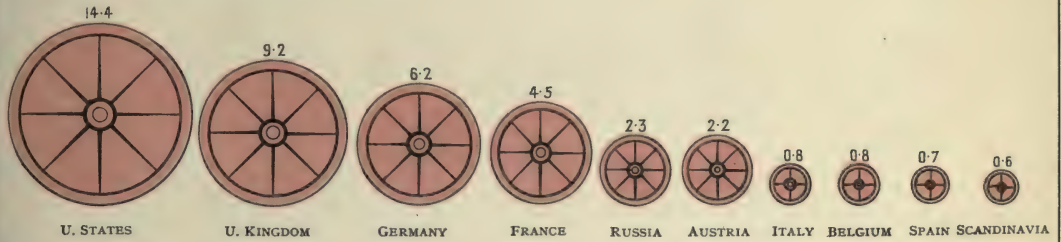
Horse-power per 1000 inhabitants.
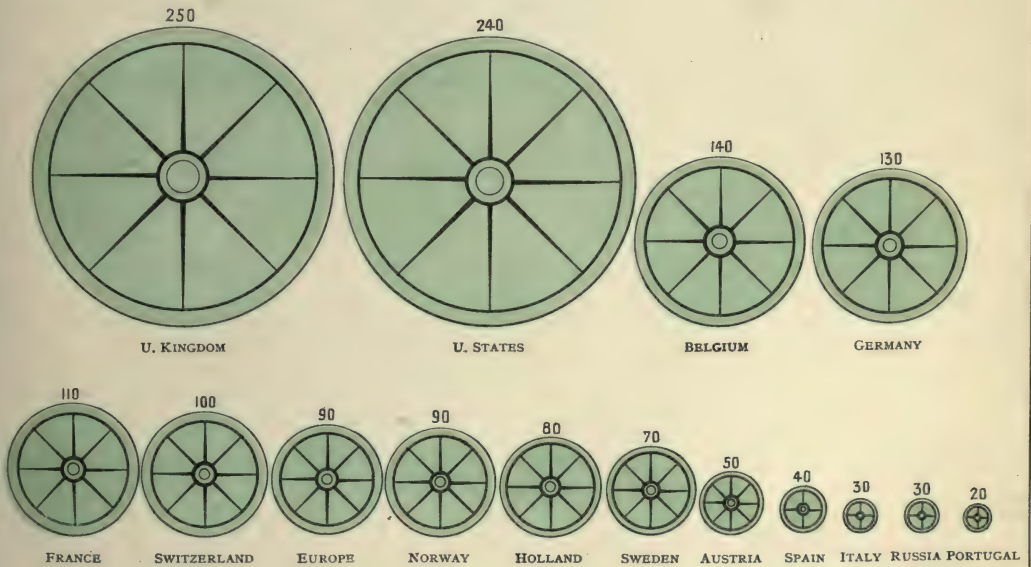
SQUARES

Name	City	Acres
Grosvenor . . .	London	10
Parade . . .	Vienna	15
Schloss . . .	Berlin	16
Bellecour . . .	Lyons	32
St. Stephen's . . .	Dublin	40

STATISTICS.

The library of the Royal Statistical Society comprises 27,000 volumes, and is far from complete. There are at least 50,000 statistical works extant, and if a student were able to examine three of them daily he would require 50 years to get through them. More than 500 new works on statistics are published yearly.

STEAM

The following table shows approximately the steam-power of all nations at various dates :—

	Horse-Power						Per 100 Inhabitants in 1888
	1840	1850	1860	1870	1880	1888	
United Kingdom . .	620,000	1,290,000	2,450,000	4,040,000	7,600,000	9,200,000	25
France	90,000	370,000	1,120,000	1,850,000	3,070,000	4,520,000	11
Germany	40,000	260,000	850,000	2,480,000	5,120,000	6,200,000	13
Russia	20,000	70,000	200,000	920,000	1,740,000	2,240,000	3
Austria	20,000	100,000	330,000	800,000	1,560,000	2,150,000	5
Italy	10,000	40,000	50,000	330,000	500,000	830,000	3
Spain	10,000	20,000	100,000	210,000	470,000	740,000	4
Portugal	...	...	10,000	30,000	60,000	80,000	2
Sweden	...	...	20,000	100,000	220,000	300,000	7
Norway	...	...	10,000	40,000	90,000	180,000	9
Denmark . . .	...	...	10,000	30,000	90,000	150,000	8
Holland . . .	...	10,000	30,000	130,000	250,000	340,000	8
Belgium . . .	40,000	70,000	160,000	350,000	610,000	810,000	14
Switzerland . . .	...	...	90,000	140,000	230,000	290,000	10
Various	10,000	10,000	80,000	120,000	390,000	600,000	6
Europe	860,000	2,240,000	5,540,000	11,570,000	22,000,000	28,630,000	9
United States . . .	760,000	1,680,000	3,470,000	5,590,000	9,110,000	14,400,000	24
Colonies, &c. . .	30,000	70,000	400,000	1,300,000	3,040,000	7,120,000	...
Total . .	1,650,000	3,990,000	9,380,000	18,460,000	34,150,000	50,150,000	...

The distribution of fixed steam-power was approximately as follows :—

	1840	1850	1860	1870	1880	1888
United Kingdom . .	350,000	500,000	700,000	900,000	2,000,000	2,200,000
Continent . . .	100,000	220,000	650,000	1,860,000	3,270,000	4,150,000
United States . .	360,000	600,000	800,000	1,220,000	2,200,000	3,300,000
Colonies, &c. . .	20,000	40,000	70,000	120,000	200,000	400,000
Total . .	830,000	1,360,000	2,220,000	4,100,000	7,670,000	10,050,000

The distribution of railway steam-power was approximately thus :—

	1840	1850	1860	1870	1880	1888
United Kingdom . .	200,000	700,000	1,400,000	2,140,000	3,200,000	3,500,000
Continent . . .	90,000	630,000	2,210,000	5,200,000	9,640,000	12,780,000
United States . .	200,000	600,000	1,800,000	3,300,000	5,700,000	9,300,000
Colonies, &c. . .	...	10,000	300,000	1,100,000	2,700,000	6,400,000
Total . .	490,000	1,940,000	5,710,000	11,740,000	21,240,000	31,980,000

The distribution of shipping steam-power was approximately thus :—

	1840	1850	1860	1870	1880	1888
United Kingdom . .	70,000	90,000	350,000	1,000,000	2,400,000	3,500,000
Continent . . .	50,000	100,000	200,000	470,000	1,490,000	2,670,000
United States . .	200,000	480,000	870,000	1,070,000	1,210,000	1,770,000
Colonies, &c. . .	10,000	20,000	30,000	80,000	140,000	180,000
Total . .	330,000	690,000	1,450,000	2,620,000	5,240,000	8,120,000

Summing up the table, we find as follows :—

	1840	1850	1860	1870	1880	1888
Fixed . . .	830,000	1,360,000	2,220,000	4,100,000	7,670,000	10,050,000
Locomotives . .	490,000	1,940,000	5,710,000	11,740,000	21,240,000	31,980,000
Shipping . . .	330,000	690,000	1,450,000	2,620,000	5,240,000	8,120,000
Total . .	1,650,000	3,990,000	9,380,000	18,460,000	34,150,000	50,150,000

The following table shows approximately the number of fixed engines in 1880, and of locomotives and steamboats in 1888 :—

	Number		Steamers	
	Fixed Engines	Locomotives	Mercantile	War
U. Kingdom .	110,000	16,000	6,870	200
France . . .	37,800	9,600	1,020	200
Germany . .	55,100	13,000	750	60
Russia . . .	8,950	6,000	650	280
Austria . .	9,150	4,500	100	50
Italy . . .	4,450	2,000	270	150
Spain . . .	2,300	1,300	420	25
Portugal . .	140	250	40	30
Sweden . .	1,500	700	960	30
Norway . .	700	200	540	20
Denmark . .	800	200	290	20
Holland . .	5,750	650	110	30
Belgium . .	11,750	2,400	50	...
Switzerland .	1,500	650	30	...
Various . .	500	3,000	140	60
Europe . .	250,390	60,450	12,240	1,155
United States	60,300	31,000	5,920	70
Colonies, &c.	15,000	15,700	600	80
Total .	325,690	107,150	18,760	1,305

Steam being measured by horse-power, it is well to bear in mind the following facts :—

One horse-power will raise 10 tons per minute a height of 12 inches, working 8 hours a day. This is about 5000 foot-tons daily, or 12 times a man's work.

(1.) Mail-coach horses : Four will draw a coach, say 2 tons, at the rate of 10 miles an hour, for 6 days every week, and last 5 years.

(2.) Canal horses : One will draw a barge of 25 tons, resistance 108 lbs., at 2½ miles per hour.

(3.) Waggoners' horses : One will easily draw a ton 30 miles in a day of 12 hours.

Sims mentions a Devonshire cart-horse, 15 hands, 1200 lbs., which gave an average of 8000 foot-tons daily.

The horse-power of Niagara is 3¼ millions nominal, equal to 10 million horses effective, valued at £15,000,000 per annum, if conveyed by electricity to New York.

The measurement of horse-power, that is, of raising a certain weight 12 inches per minute during 8 hours daily, is variously given by the best authorities, viz. :—

	Lbs.			Lbs.
Smeaton .	. . 22,000	Desaguliers	. .	27,500
Sims	. . 23,400	Watt	. . .	32,000
Tredgold .	. 27,500	Saussure .	. .	34,000

In 1880 Mr. Engel showed that the value of industries dependent on steam was 6275 millions sterling ; his table for 1880 may compare with one for 1888 as follows :—

	Millions £ Sterling		Increase
	1880	1888	
Railways . . .	4,000	5,700	1,700
Factories, &c. . .	2,000	2,600	600
Steamers . . .	275	410	135
Total . .	6,275	8,710	2,435

This shows that in eight years about 300 millions sterling per annum of new capital went into industries worked by steam. Mr. Engel finds that the maintenance of a 300-horse locomotive costs £900 a year, or £3 per horse-power, whereas the food of a live horse costs £30 per annum. Stationary engines, he says, cost £15 per annum per horse-power. A water-wheel of 100 horse-power costs only £7 per annum, or less than 18d. per horse. He shows that during twelve years ending 1878 each locomotive in Prussia drew yearly 1710 tons a distance of 6 miles per horse-power; that is, a 300-horse engine drew nearly the above weight daily 10 kilometres or 6 miles. He shows further that a live horse draws about 92 tons in the year a distance of 6 miles, and that on comparing the cost of maintenance, the locomotive does its work at one halfpenny per ton, whereas the live horse costs 7s. for the same, that is, one ton for 6 miles. In other words, horse-draught costs 168 times as much as that done by locomotive. In simple form it may be stated thus :—

Locomotive draws daily 100 tons a length of 100 miles for 50s., say 6d. per ton per 100 miles.

Horse draws one ton two miles daily for 20d., being at the rate of 84s. per ton per 100 miles.

In 1880 the average power of locomotives was 250 horse in England, 290 in Germany, 350 in France, and 420 in Switzerland.

UNITED KINGDOM

In 1775 England had 20 steam-engines, with an aggregate of 300 horse-power. The use of steam in textile factories rose as follows :—

Year						Horse-Power
1835 .	.	.	.	.	.	41,000
1850 .	.	.	.	.	.	108,000
1860 .	.	.	.	.	.	375,000
1870 .	.	.	.	.	.	478,000

According to Fairbairn, in 1860 the steam-engines, fixed and movable, amounted to an aggregate of 3,650,000 horse-power. Engel made the aggregate in 1880 no less than 6,986,000. The following table shows approximately the growth of the various classes of steam-power :—

Year	Horse-Power			
	Fixed	Locomotives	Steamboats	Total
1840	350,000	180,000	70,000	600,000
1850	500,000	700,000	90,000	1,290,000
1860	700,000	1,350,000	350,000	2,400,000
1870	940,000	2,100,000	1,000,000	4,040,000
1880	2,000,000	3,200,000	2,400,000	7,600,000
1888	2,200,000	3,500,000	3,500,000	9,200,000

Engel seems to have under-estimated the horse-power of steamers, his estimate for the United Kingdom in 1880 being as follows :—

Fixed .	.	.	.	.	2,000,000
Locomotives .	.	.	.	3,240,000
Steamboats .	.	.	.	1,746,000
					6,986,000

In the preceding table steamboats, of course, include both merchant vessels and the royal navy. Actual horse-power is double the nominal.

The power of locomotives in England is variously estimated at 220 to 250 horse-power. From the above table it appears that the steam force of the United King- dom has grown 15-fold in 48 years. In 1886 there were 134,000 factories in the United Kingdom, nearly all driven by steam.

FRANCE

Engel's tables down to 1878 are included in the following :—

Year	Engines, Number			Horse-Power			Total
	Fixed	Locomotives	Steamboats	Fixed	Locomotives	Steamboats	
1840 . . .	2,591	142	263	34,000	42,000	11,000	87,000
1850 . . .	5,322	973	537	67,000	291,000	22,000	380,000
1860 . . .	14,936	3,101	681	181,000	930,000	37,000	1,148,000
1870 . . .	27,958	4,835	973	341,000	1,452,000	60,000	1,853,000
1878 . . .	38,880	6,669	1,183	492,000	2,363,000	169,000	3,024,000
1885 . . .	50,980	9,155	4,290	695,000	3,290,000	530,000	4,515,000

The earliest record of steam-power is for 1835, when there were 1450 engines, with 19,000 horse-power. The distribution of steam, as officially reported, was in 1885 as follows :—

	Number	Horse-Power	Average
Mines . . .	4,140	102,000	25
Foundries . .	7,050	147,000	20
Textile factories .	6,470	147,000	22
Flour-mills . .	8,620	92,000	11
Farms . . .	11,940	66,000	6
Various . .	12,760	141,000	11
Total fixed .	50,980	695,000	14
Locomotives . .	9,155	3,290,000	360
Steamboats . .	937	530,000	560
Total .	61,072	4,515,000	74

In this table the number of steamboats is given; in the preceding that of engines.

GERMANY

The following contains Engel's table for Prussia down to 1878 :—

Year	Horse-Power			
	Fixed	Locomotives	Steamers	Total
1840	11,700	300	200	12,200
1852	43,000	40,200	9,200	92,400
1861	143,000	206,000	16,000	365,000
1878	958,000	2,033,000	50,000	3,041,000
1888	1,500,000	2,600,000	120,000	4,220,000

The number of engines in Prussia was as follows :—

	1840	1852	1831	1873
Fixed . .	615	2,124	7,000	35,430
Locomotives	13	607	1,450	6,990
Steamboats	6	102	198	623
Total .	634	2,833	8,648	43,043

Mr. Engel's locomotive steam-power for 1852 seems low, as Prussia had then 2000 miles of railway ; it is only 20 horse-power per mile.

The distribution of steam-power of stationary engines in Prussia in 1878 was as follows :—

Class	Engines	Horse-Power
4-horse . . .	1,990	8,000
15-horse . . .	10,140	156,000
Various . . .	23,300	794,000
Total .	35,430	958,000

The total steam-power of Prussia in 1878 showed thus :—

	Engines	Horse-Power
Stationary . . .	35,430	958,000
Locomotives . .	6,990	2,033,000
Steamboats . .	623	50,000
Total .	43,043	3,041,000

The steam-power of Germany at various dates was approximately as follows :

	Horse-Power					
	1840	1850	1860	1870	1880	1888
Fixed	20,000	40,000	200,000	900,000	1,680,000	2,000,000
Locomotives . . .	20,000	200,000	600,000	1,500,000	3,020,000	3,700,000
Steamers . . .	...	20,000	50,000	80,000	420,000	500,000
Total . .	40,000	260,000	850,000	2,480,000	5,120,000	6,200,000

According to the Census of 1880 the employment of steam in fixed engines was as follows :—

	Horse-Power
Factories	1,283,000
Mines	394,000
Total . . .	1,677,000

The increase of manufactures and mining since 1880 leads to the inference that the motive power of fixed engines in 1888 was 2,000,000 horse-power.

RUSSIA

Moscow had two steam-engines in 1820, and in ten years later the number had risen to 100.

In 1880 there were 8946 fixed engines, with an aggre- gate of 237,000 horse-power. The whole steam-power

of the Empire may be estimated to have been approximately as follows :—

Year	Horse-Power			
	Fixed	Locomotives	Steamboats	Total
1840	10,000	10,000	10,000	30,000
1860	60,000	100,000	40,000	200,000
1880	237,000	1,400,000	100,000	1,737,000
1888	300,000	1,800,000	140,000	2,240,000

In 1888 the mining works alone had 100,000 horse-power, almost all steam.

AUSTRIA

Official returns for Austria proper give as follows :—

Year	Engines	Horse-Power
1841	312	7,100
1852	1,182	49,800
1863	4,416	336,000
1875	12,390	1,275,000

	Engines			Horse-Power		
	1852	1863	1875	1852	1863	1875
Fixed . .	671	2,882	9,160	9,000	47,000	157,000
Locomotives	405	1,244	2,786	27,800	249,000	990,000
Steamers .	106	290	462	13,000	40,000	128,000
Total .	1,182	4,416	12,390	49,800	336,000	1,275,000

SPAIN AND PORTUGAL

The amount of steam-power in the Peninsula in 1870 and 1888 is shown approximately thus :—

	1870			1888		
	Spain	Portugal	Total	Spain	Portugal	Total
Fixed	20,000	1,000	21,000	48,000	3,000	51,000
Locomotives	150,000	20,000	170,000	300,000	60,000	360,000
Steamers	45,000	5,000	50,000	390,000	15,000	405,000
Total . . .	215,000	26,000	241,000	738,000	78,000	816,000

In 1873 the textile mills of Spain had 17,000 horse-power, the factories of Portugal 70 engines, with a total of 1200 horse ; in 1888 the latter had 2700 horse-power.

SWITZERLAND

In 1877 there were 1580 fixed engines, with an aggregate of 32,000 horse-power. In 1885 there were 600 locomotives, with an average power of 420 horse, being much above the European average. The total steam-power may be estimated thus :—

	Engines	Horse-Power
Fixed	2,000	38,000
Locomotives . . .	600	250,000
Steamers	...	2,000
Total . .	...	290,000

In 1851 there were but 34 fixed engines, the number rising to 312 in 1860, and to 955 in 1870.

HOLLAND

In 1883 there were 6689 steam-engines against 4753 in 1877. The total in 1883 (exclusive of railway locomotives) showed as follows :—

	Engines	Horse-Power
On land	5,564	73,100
On water	1,125	37,300

In 1887 the fixed engines of Austria without Hungary rose to 19,615, and the whole steam-power of the Empire in 1888 may be estimated thus :—

	Engines	Horse-Power
Fixed . . .	24,000	400,000
Locomotives . .	4,400	1,500,000
Steamers . . .	...	250,000
Total . .	...	2,150,000

ITALY

In 1877 there were 4459 fixed engines with 54,000 horse-power, and in 1888 the horse-power may be supposed to have reached 150,000, seeing that the consumption of coal has trebled in the interval.

The steam-power was approximately as follows :—

	Horse-Power	
	1877	1888
Fixed	54,000	150,000
Locomotives . . .	300,000	500,000
Steamers	60,000	180,000
Total . .	414,000	830,000

BELGIUM

In 1836 the total steam-power of the Kingdom was 20,000 horse.

Official returns are to the following effect :—

Year	Engines			Horse-Power		
	Factories	Locomotives, &c.	Total	Factories	Locomotives	Total
1845	1,501	172	1,673	39,000	9,000	48,000
1850	2,013	269	2,282	51,000	15,000	66,000
1860	4,346	651	4,997	99,000	63,000	162,000
1870	8,133	1,161	9,294	176,000	172,000	348,000
1880	11,758	2,302	14,060	275,000	332,000	607,000
1887	13,036	3,331	16,367	337,000	476,000	813,000

The steam-power in 1887 showed in detail thus :—

	Engines	Horse-Power	Average
Factories . . .	13,036	337,000	26
Locomotives . .	2,990	446,000	150
Steamers . .	341	30,000	88
Total . .	16,367	813,000	50

SCANDINAVIA

In 1888 the steam-power of the three northern kingdoms was approximately as follows :—

	Horse-Power			
	Sweden	Norway	Denmark	Total
Fixed . . .	28,000	10,000	10,000	48,000
Locomotives . .	140,000	30,000	40,000	210,000
Steamers . . .	130,000	140,000	100,000	370,000
Total . .	298,000	180,000	150,000	628,000

UNITED STATES

There is no record of fixed horse-power before 1870, but we can estimate by the number of hands engaged in manufactures at previous dates. The whole steam-power was approximately thus :—

Year	Horse-Power				Per 1000 Population
	Fixed	Loco-motives	Steam-boats	Total	
1840	360,000	200,000	200,000	760,000	44
1850	600,000	600,000	500,000	1,700,000	73
1860	800,000	1,800,000	900,000	3,500,000	111
1870	1,216,000	3,300,000	1,100,000	5,616,000	148
1880	2,186,000	5,700,000	1,200,000	9,086,000	180
1888	3,300,000	9,300,000	1,800,000	14,400,000	240

In the above table locomotives are taken at 300 horse each, and the horse-power of steamers as equivalent to their tonnage. The fixed horse-power for 1888 is not known, but as mining has increased 90 per cent. and manufactures over 30 per cent., it is likely motive-power has risen 50 per cent. since 1880.

STONE

The latest statistics as to stone-quarries show the annual yield thus :—

	Product, Tons	Value, £
Great Britain . .	11,000,000	8,700,000
France . . .	8,000,000	6,600,000
Belgium . . .	2,000,000	1,300,000
United States . .	7,000,000	5,300,000

The marble quarries of Italy have an output valued at one million sterling.

STREETS

Heavy traffic averages 100,000 tons, light 50,000 tons per yard per annum. The former wears wooden pavement an inch in five years. Some authorities estimate the first cost of paving per square yard as follows :—Stone 10s., wood 14s., asphalt 18s.

The cost of paving and keeping in order a street 10 yards wide and 1000 yards long in wood and stone is shown as follows :—

	Heavy Traffic, £		Light Traffic, £	
	Wood	Stone	Wood	Stone
First cost . . .	7,500	7,200	7,500	7,200
Maintenance, 30 years	15,000	3,600	7,500	2,400
Total .	22,500	10,800	15,000	9,600

The streets of Paris, taking a medium width of 50 feet, are as follows :—

	Square Metres	Miles Long	Mainte-nance, £
Cut stone . .	1,800,000	75	160,000
Rough . .	5,800,000	244	120,000
Asphalt . .	270,000	11	12,000
Total .	7,870,000	330	292,000

Side-walks made of granite cost 18s. per square yard for construction, and 1d. yearly for repairs. The sweeping of the streets employs 3100 hands.

The streets of Berlin, at an average width of 50 feet, are :—

	Square Metres	Miles Long
Paved . . .	4,280,000	180
Asphalt . . .	125,000	5
Wood . . .	10,000	...
Total .	4,415,000	185

Sweeping costs £80,000 a year.

STRENGTH

Taking that of a man as 100, Byron's Gladiator is equal to 173, the Farnese Hercules 362, and a horse 750.

SUGAR

The following table shows the production approximately :—

	Cane, Tons	Beet, Tons	Total
1840 . . .	1,100,000	50,000	1,150,000
1850 . . .	1,200,000	200,000	1,400,000
1860 . . .	1,800,000	400,000	2,200,000
1870 . . .	1,830,000	900,000	2,730,000
1880 . . .	1,860,000	1,810,000	3,670,000
1889 . . .	2,580,000	2,780,000	5,360,000

The production of beet-sugar according to the *Bulletin Statistique* was as follows in Europe :—

	Tons Yearly					
	1836–39	1840–49	1850–59	1860–69	1870–79	1880–84
France	43,000	34,000	93,000	188,000	370,000	406,000
Germany	6,000	14,000	87,000	169,000	297,000	667,000
Austria	1,000	3,000	28,000	70,000	205,000	478,000
Russia	...	...	26,000	118,000	260,000	284,000
Belgium	...	...	11,000	28,000	68,000	75,000
Holland, &c. . . .	...	...	...	1,000	18,000	30,000
Europe . .	50,000	51,000	245,000	574,000	1,218,000	1,940,000

According to the same writer, the United States produced in the last four years 337,000 tons of beet-sugar yearly.

Licht and Goerz compute the production of beet-sugar in 1887 and 1889 as follows in tons :—

	1887	1889
Germany	1,013,000	975,000
Austria	523,000	575,000
France	485,000	475,000
Russia	487,000	510,000
Belgium	132,000	137,000
Holland	36,000	45,000
Various	56,000	61,000
Total . .	2,732,000	2,778,000

This seems to exclude any beet-sugar raised in the United States. The *Economist* gives the following table :—

Year	Cane, Tons	Beet, Tons	Total
1882 . . .	2,107,000	2,147,000	4,254,000
1884 . . .	2,351,000	2,546,000	4,897,000
1886 . . .	2,346,000	2,729,000	5,074,000
1888 . . .	2,412,000	2,850,000	5,262,000

The following statistics refer to the manufacture of beet-sugar :—

	Factories		Tons Root Used		Sugar, Tons	
	1883	1887	1883	1887	1883	1887
Germany .	358	401	8,700,000	8,300,000	830,000	990,000
France .	496	391	7,200,000	4,900,000	410,000	415,000
Austria .	232	209	4,900,000	4,300,000	560,000	520,000
Belgium .	155	111	...	...	95,000	105,000

The production of cane-sugar, according to N. Spallart and others, was by latest accounts as follows :—

	Tons			Tons
Cuba . . .	530,000	Guadeloupe, &c. .	.	100,000
Java . . .	320,000	United States	.	100,000
Brazil . . .	230,000	Porto Rico .	.	80,000
India . . .	220,000	Honolulu .	.	60,000
Jamaica, &c. . .	210,000	Argentina .	.	60,000
Manilla .	180,000	Egypt . .	.	40,000
Mauritius .	120,000	Peru . .	.	30,000
Guiana . .	120,000	Mexico . .	.	30,000
China . .	100,000	Australia .	.	20,000

The *Ann. Stat.* for 1885 published the following table of average annual consumption during the four years immediately preceding, to which may be added a table published in Paris in 1868 :—

	1881-84		1868
	Tons	Lbs. per Inhabitant	Lbs. per Inhabitant
United Kingdom .	1,105,000	69	40
France . . .	386,000	23	18
Germany . . .	313,000	15	10
Austria . . .	231,000	13	4
Russia . . .	300,000	8	2
Sweden . . .	37,000	18	8
Norway . . .	10,000	11	10
Holland . . .	55,000	29	41
Belgium . . .	40,000	16	22
Denmark . .	27,000	30	20
Switzerland . .	30,000	23	10
Italy . . .	100,000	7	...
Spain and Portugal .	60,000	6	4
Total . .	2,694,000	...	...

In 1887 the total consumption of sugar was put down as follows :—

	Tons
United Kingdom	1,100,000
Continent	1,900,000
United States	1,500,000
Australia	100,000
Various	600,000
Total . . .	5,200,000

It appears that the world consumes now twice as much sugar as in 1870, and four times as much as in 1850. The fall in price partly explains this prodigious increase of consumption.

UNITED KINGDOM

The consumption of sugar has been as follows :—

Year	Tons	Lbs. per Inhab.	Duty per Ton	Price per Ton
1705 . . .	12,000	3	£3	£70
1730 . . .	41,000	9	4	70
1750 . . .	53,000	11	5	70
1780 . . .	77,000	14	7	70
1801 . . .	165,000	22	20	85
1811 . . .	184,000	23	27	90
1820 . . .	143,000	15	27	63
1830 . . .	214,000	20	24	49
1840 . . .	188,000	15	24	48
1850 . . .	310,000	25	10	40
1860 . . .	420,000	32	13	35
1870 . . .	690,000	49	5	32
1881 . . .	1,050,000	68	...	22
1888 . . .	1,170,000	70	...	14

About 70,000 tons are annually consumed by brewers.

FRANCE

A table published in 1869 gives the consumption from 1817 till 1868 :—

Year	Tons	Lbs. per Inhabitant
1817	31,000	2
1825	55,000	4
1832	73,000	5
1840	109,000	6
1854	135,000	8
1862	200,000	12
1868	310,000	18
1887	410,000	23

The last item is not official, but the ratio already quoted for the years 1881-84. France has 439 sugar-factories, employing 68,400 men, moved by 48,000 horse-power of steam, and valued at £15,200,000. The production of beet-root averages 11 tons per acre.

GERMANY

The production of beet-root is officially stated thus :—

Period	Tons of Roots Yearly
1844-55	680,000
1856-65	1,710,000
1866-75	2,820,000
1876-80	4,680,000
1881-87	8,310,000

The quantity of sugar obtained from a ton of roots has risen in late years, viz. :—

Year	Tons Roots	Tons Sugar	Per Cent.
1872 . . .	2,250,000	185,000	8.3
1880 . . .	4,810,000	410,000	8.5
1887 . . .	8,310,000	990,000	11.9

The estimated consumption of roots in 400 beet-sugar factories during the year 1889 was 6,500,000 tons, which produced 992,000 tons of sugar, or more than 15 per cent.

The first mention of beet-sugar is in 1816, when 1400 tons were produced in Prussia. In 1836 it was found that 100,000 tons of beet did not yield quite 5000 tons of sugar.

RUSSIA

The sugar industry was begun at Tulla in 1811, but was little heard of until 1850. The area under beet-root in 1864 was 290,000 acres, and the production close on a million tons of roots, an average of less than 3½ tons per acre. In 1883 there were 214 sugar-factories, consuming 4,000,000 tons of roots, from which they extracted 260,000 tons of sugar, say 6½ per cent., against 10 per cent. in Germany. In 1887 the mills turned out 405,000 tons of sugar. The millers buy the roots at 15s. a ton, and sell the sugar at £18 per ton, which leaves them a profit of 30s. per ton of sugar, after paying their 40,000 operatives and all expenses. The peasants who grow the beet-root count on an average crop of six tons per acre, which they sell for 90s., and their rent and taxes being 16s. an acre, they count on 74s. an acre for the support of their household.

SUICIDE

It is customary to compute the number per million inhabitants yearly, and under this heading whenever the term "million inhabitants" is used, it signifies more correctly one million persons of a given age or class. Partial records down to recent years will be found for the principal countries. The following is a general table :—

	Suicides Yearly per Million Population		
	1851–60	1871–77	1885–87
England	65	67	80
Scotland	...	40	...
Ireland	...	17	...
France	105	157	205
Germany	126	143	208
Russia	35	30	...
Austria	45	122	159
Italy	18	37	45
Spain	...	14	...
Portugal	14	18	...
Sweden	72	81	...
Norway	100	73	...
Denmark	274	258	...
Holland	...	36	...
Belgium	49	67	130
Switzerland	...	202	...
Massachusetts	...	82	...
Australia	...	86	115

City rates are usually much higher than the average for the corresponding countries.

The following table is not for a given term of years, but merely compares the latest rates recorded for various cities :—

Per Million Inhabitants

Berlin .	.	.	170	Naples	.	.	60
Brussels	.	.	271	New York .	.	.	144
Copenhagen	.	.	302	Paris .	.	.	422
Dresden	.	.	240	Rio Janeiro	.	.	60
Florence	.	.	76	Rome .	.	.	53
Frankfort	.	.	344	St. Petersburg	.	.	206
Genoa .	.	.	64	Stockholm	.	.	272
London	.	.	85	Turin .	.	.	110
Milan .	.	.	133	Vienna	.	.	287

In all countries suicide is more frequent with men than women, as the following table shows; as also the different rates per million for urban and for rural population :—

	Per Million		Percentage of Sexes	
	Urban	Rural	Males	Females
France . . .	217	118	79	21
Prussia . . .	162	97	81	19
Denmark . . .	307	271	77	23
Saxony . . .	317	219	81	19
Italy . . .	66	30	80	20
Belgium . . .	61	34	85	15
Sweden . . .	167	68	77	23
Norway . . .	103	65	76	24
Denmark . . .	236	238	77	23

In Holland, of 100 suicides 16 are by women; in Austria, 18; in England, 26; in Russia, 21; in Switzerland, 12; in Spain, 29; and in the United States, 28. The difference that prevails between married and single is pointed out by various writers. In Switzerland, during four years ending 1880, of 100 women under 30 years who committed suicide 80 were unmarried.

The following table shows approximately the ratios of adults, married and unmarried, in several countries, and the ratios of suicide according to Legoyt :—

	Inhabitants, Percentage		Suicides, Percentage	
	Married	Unmarried	Married	Unmarried
France . .	55	45	46	54
Germany .	52	48	43	57
Italy . . .	53	47	44	56
Switzerland	47	53	43	57

In all countries the rate of suicide among unmarried is much higher than among married. In France, as shown later on, the value of domestic ties as a restraint against suicide is shown in the fact that persons with children are much less disposed to it than those who have none.

Suicide is much more frequent in Protestant than in Catholic countries. Legoyt and other writers show that in countries where both religions exist the tendency of Protestants to suicide is greater, as shown in the rates for the following countries per million inhabitants yearly :—

	Protestant	Catholic	General Rate
United Kingdom . .	63	17	56
Prussia	170	52	131
Bavaria	195	69	102
Austria-Hungary . . .	140	90	96
Switzerland	262	81	202

Legoyt says the Jews have even a lower rate of suicide than Catholics.

If we suppose 1200 suicides yearly in each of the following countries, the months in which they occur show as follows :—

	London	France	Austria	Italy	Sweden
January . .	88	86	74	71	74
February .	86	90	77	94	61
March . .	101	102	90	101	86
April . . .	112	112	105	118	120
May . . .	120	117	132	136	137
June . . .	122	135	140	144	130
July . . .	108	119	132	122	125
August . .	107	102	104	104	120
September .	92	92	99	88	90
October . .	93	90	95	77	102
November .	87	79	82	73	82
December .	84	76	70	72	73
Total .	1,200	1,200	1,200	1,200	1,200

The causes of suicide vary with race and climate thus :—

Spain and Italy					North Europe			
Insanity	.	.	.	29.0	Insanity	.	.	34.0
Poverty	.	.	.	22.0	Grief	.	.	23.0
Sickness	.	.	.	20.0	Drink	.	.	15.0
Various	.	.	.	29.0	Various	.	.	28.0
	Total	.		100.0		Total	.	100.0

The distribution according to seasons, from observations in 1861-77, was as follows :—

	Spring	Summer	Autumn	Winter	Total
U. Kingdom	336	372	264	228	1,200
France . .	331	356	261	252	1,200
Prussia . .	341	348	272	239	1,200
Saxony . .	332	353	270	245	1,200
Bavaria . .	348	364	254	234	1,200
Wurtemburg	335	373	252	240	1,200
Austria . .	357	375	235	233	1,200
Italy . . .	355	370	238	237	1,200
Sweden . .	343	375	274	208	1,200
Norway . .	383	366	273	178	1,200
Denmark .	350	370	264	216	1,200
Holland . .	384	356	220	240	1,200
Belgium . .	331	359	277	233	1,200
Switzerland	322	346	294	238	1,200
Spain . .	316	449	240	195	1,200

Suicide is most frequent in the summer months in all countries except Norway and Holland, where the spring months are most fatal.

The occurrence of suicide by day or night shows the following percentages in France and Switzerland :—

	France	Switzerland
Noon to 6 P.M. . .	22.8	22.0
6 P.M. to midnight . .	23.2	23.6
Midnight to 6 A.M. . .	18.3	18.0
6 A.M. to noon . . .	35.7	36.4

The method of suicide varies with sex and country as follows, according to Ritti's observations in 1861-77 :—

Men

			Hanging	Drowning	Firearms	Knife	Poison	Various	Total
England	.	.	407	155	66	218	70	84	1,000
France	.	.	468	254	139	35	15	89	1,000
Prussia	.	.	645	131	133	40	20	31	1,000
Saxony	.	.	701	134	104	20	16	25	1,000
Wurtemburg	.		736	157	33	53	11	10	1,000
Austria	.	.	505	208	172	...	66	49	1,000
Italy	.	.	166	350	163	63	53	205	1,000
Sweden	.	.	510	193	116	95	79	7	1,000
Norway	.	.	664	184	54	47	...	51	1,000
Denmark	.	.	727	142	37	18	60	16	1,000
Belgium	.	.	563	198	139	42	15	43	1,000
Switzerland	.	.	458	228	186	70	25	33	1,000

Women

England	.	.	281	324	1	115	155	124	1,000
France	.	.	311	423	10	28	37	191	1,000
Prussia	.	.	440	326	81	36	70	47	1,000
Saxony	.	.	461	440	5	25	45	24	1,000
Wurtemburg	.		458	441	...	60	21	20	1,000
Austria	.	.	324	410	38	...	176	52	1,000
Italy	.	.	175	491	31	54	79	170	1,000
Sweden	.	.	404	324	1	87	179	5	1,000
Norway	.	.	557	332	5	9	...	97	1,000
Denmark	.	.	583	359	1	26	31	...	1,000
Belgium	.	.	447	395	2	26	70	60	1,000
Switzerland	.	.	228	516	45	45	91	75	1,000

According to Bulgarin, 73 per cent. of male suicides in Russia are by hanging. The Austrian classification does not distinguish those by the knife ; hence the blanks.

It is a painful fact that in all armies suicide is much more frequent than among civilians of same age. The rates per million in the several countries show thus, age 20 to 60 years, for the years 1869-73 :—

						Soldiers	Civilians
British	.	.	.	.	.	380	110
French	.	.	.	.	.	510	205
German	.	.	.	.	.	640	250
Austrian	.	.	.	.	.	860	120
Italian	.	. .	.	.	.	300	80
Belgian	.	.	.	.	.	460	70
Swedish	.	.	.	.	.	450	120

In 1882 the rates in the British army were :—

Age	U. Kingdom	Colonies	India
20-25 . . .	200	210	130
25-30 . . .	390	330	390
30-35 . . .	510	450	840
35-40 . . .	710	810	1,030

The rates in the United Kingdom were 310 for infantry, 340 for artillery, and 500 for cavalry, per million.

UNITED KINGDOM

Dr. Ogle's paper for England and Wales shows 42,630 suicides in 26 years ending 1883. Some of these were of children under 10 years old, but not sufficient to adopt a rate. He therefore classifies age thus :—

				Rates per Million		
				Persons	Male	Female
10-15	.	.	.	4	4	3
15-20	.	.	.	28	26	30
20-25	.	.	.	47	62	34
25-35	.	.	.	69	99	42
35-45	.	.	.	116	175	62
45-55	.	.	.	184	271	103
55-65	.	.	.	251	396	119
65-75	.	.	.	243	394	113
75-85	.	.	.	183	306	85
Over 85	.	.	.	116	226	46
All ages	.	.	.	72	104	41

It will be seen that suicide is much more frequent among males than females, the ratio being as follows :—

Age						Female	Male
10-15	.	.	.	.	.	100	133
25-35	.	.	.	.	.	100	236
55-65	.	.	.	.	.	100	333
Over 85	.	.	.	.	.	100	491

Suicides among males of 25-65 years of age were per million as follows :—

Miner	. .	74	Painter	. .	224	Baker	. .	328
Clergyman	.	139	Weaver	. .	229	Clerk	. .	329
Fisherman	.	157	Miller	. .	239	Broker	. .	346
Gardener	.	160	Tanner	. .	249	Milkman	.	353
Mason	. .	175	Shoemaker	.	252	Hairdresser	.	364
Labourer	.	177	Tailor	. .	256	Butcher	. .	407
Policeman	.	201	Printer	. .	262	Lawyer	. .	408
Carpenter	.	213	Farmer	. .	270	Physician	.	472
Carter	.	214	Schoolmaster	290	Beer-seller	.	474
Grocer	. .	218	Cabman	. .	303	Soldier	. .	1,149
Smith	. .	222	Watchmaker	315	Gen. average	222

The method of suicide is shown in the following table :—

Method	Persons	Males	Females
Hanging	365	417	240
Drowning . . .	185	152	264
Cut or stab . . .	184	207	129
Poison	99	79	145
Gunshot	48	67	2
Jump from height . .	25	21	36
Railway train . . .	19	24	8
Otherwise . . .	75	33	176
All methods . .	1,000	1,000	1,000

The ratio of methods, however, varies with age, as shown thus :—

	Males		Females	
	25-35	55-65	25-35	55-65
Gun	101	45	2	1
Cut	219	202	146	138
Poison . . .	111	58	206	83
Drowning . . .	185	132	295	200
Hanging . . .	282	500	184	305
Various . . .	102	63	167	273
Total .	1,000	1,000	1,000	1,000

The following table shows the suicide mortality at different ages in various occupations :—

	Per Million			Per Million	
	25-45	45-65		25-45	45-65
Lawyer . . .	324	562	Baker . . .	163	632
Physician . .	381	639	Hairdresser .	270	536
Schoolmaster .	156	536	Printer . . .	156	458
Broker . . .	271	485	Tailor . . .	147	457
Clerk . . .	249	475	Shoemaker .	203	341
Farmer . . .	160	473	Mason . . .	90	330
Miller . . .	68	555	Carpenter . .	122	381
Gardener . .	98	274	Policeman .	82	421
Beer-seller . .	402	606	Cabman . .	193	506
Druggist . .	380	563	Soldier . . .	506	2,336
Grocer . . .	160	326	Fisherman .	43	367
Butcher . . .	243	708	Labourer . .	114	292

There has been a steady decline of suicide in London compared with population, viz. :—

Period	Annual Average	
	Number	Per Million Inhabitants
1841-50 . . .	231	107
1851-60 . . .	257	100
1861-70 . . .	268	88
1871-80 . . .	305	85

This is contrary to the result in nearly all other cities. In Scotland the rates per million persons at various ages are stated as follows :—

Age	Per Million Persons		
	Male	Female	General Population
20-30 . . .	128	42	84
31-40 . . .	128	57	93
41-50 . . .	180	52	115
51-60 . . .	162	42	101
61-70 . . .	150	36	93
71-80 . . .	11	26	20

Scotland is the only country in the world where the rate of suicide in urban population is less than among the rural.

FRANCE

From whatever cause, the increase of suicide has been terrific ; the official returns show thus :—

Year	Number	Per Million Inhabitants
1830	1,756	51
1840	2,752	82
1850	3,596	103
1860	4,050	112
1870	4,957	133
1880	6,638	178
1885	7,902	205

Legoyt gives the annual average during fifty-three years as follows :—

Period	Number	Per Million Inhabitants
1827-30	1,739	50
1831-40	2,345	70
1841-50	3,200	90
1851-60	3,830	105
1861-70	4,935	130
1871-79	5,818	157

He shows the difference between persons with children and those without as follows :—

	Per Million	
	With Children	Without Children
Husband . . .	205	470
Widower . . .	526	1,004
Wife . . .	45	158
Widow . . .	104	238

He classes married and single persons as follows :—

	Per Million
Married	272
Unmarried	422
Widowed	737

Guerry classifies the ratios for days of the week, 100 being the average, as follows :—

Sunday . . .	96	Thursday . . .	110
Monday . . .	106	Friday . . .	96
Tuesday . . .	110	Saturday . . .	78
Wednesday . .	104		

In five years ending 1880 no fewer than 238 children under fifteen years of age committed suicide.

GERMANY

In Prussia the official returns show the annual suicides per million inhabitants as follows :—

1816-20 . . .	70	1841-50 . . .	105
1821-30 . . .	86	1851-60 . . .	126
1831-40 . . .	99	1861-75 . . .	130

In Saxony and Frankfort the rates per million were :—

Saxony			Frankfort		
1836-50 . . .	191	1852-59 . . .	349
1851-70 . . .	264	1860-69 . . .	365
1871-77 . . .	299	1870-77 . . .	344

The rates for Bavaria, Wurtemburg, and Baden were as follows :—

	1841-45	1871-76
Bavaria	55	90
Wurtemburg	107	162
Baden	68	156

In Bavaria the lowest rates were from November to January inclusive, the highest in May and June. As regards condition, the rates per million in Bavaria were:—

Married	98
Unmarried	115
Widowed	197

These rates apply only to adults, the rate for all ages, as shown above, having been only 90.

As regards condition in Prussia, the annual average number of suicides in three years ending 1875 was as follows:—

	Men	Women	Total
Divorced . . .	43	8	51
Single	796	224	1,020
Married . . .	1,130	215	1,345
Widowed . . .	351	118	469
Total .	2,320	565	2,885

AUSTRIA

Official returns show that for Austria, without Hungary, the rates rose thus, per million inhabitants:—

1864–72	72
1873–77	122

The rate in Hungary for 1864–65 was only 52. The records of Vienna for 1876–78 showed yearly 110 suicides of children under 14.

ITALY

The following table is for all Italy from 1865, but previous rates are only for the kingdom of Sardinia:—

Period	Suicides Yearly	Per Million Inhabitants
1824	...	10
1838	...	15
1865–74	498	20
1874–77	990	37
1880	1,260	45

Those recorded in ten years ending 1874 were:—

Men	3,955
Women	1,028
Total . . .	4,983

Various cities and provinces had the following rates recorded at different dates, per million inhabitants:—

Naples		Milan	
1828	56	1821–25 . . .	52
1835	88	1831–35 . . .	58
1875	60	1876 . . .	133

Lombardy		Turin	
1817–27 . . .	20	1825–39 . . .	60
1865 . . .	50	1855–59 . . .	90
1874 . . .	44	1860–64 . . .	110

The rate of suicide per million inhabitants was five times higher in Piedmont and Lombardy than in Naples and Sicily, the ratio of persons able to read and write being twice as high in the former as in the latter provinces, from which Italian writers deduce (and Dr. Ogle favours the theory) that education is a predisposing cause. Perhaps climate or race has some effect, the northern Italians being a very different race from the southern.

The rates as to condition for all Italy in the years 1866–70 were as follows, per million:—

Men			
Married . . .	41	Firearms . . .	24.5
Unmarried . .	44	Drowning . . .	19.0
Widowed . .	15	Various . . .	56.5

Suicide was nearly three times more numerous in May than in October, as 280 to 100.

The occupations of those who committed suicide in 1874–75 were:—

	Number Yearly	Ratio
Farmers	252	26.0
Operatives . . .	206	21.2
Proprietors . . .	83	8.6
Merchants . . .	55	5.7
Soldiers . . .	60	6.3
Various	311	32.2
Total . .	967	100.0

SWEDEN

Official records are quoted by Morselli, which may be condensed as follows ; this table shows the rate of suicide yearly per million inhabitants:—

Sweden		Stockholm	
Period	Rate	Period	Rate
1749–80 . . .	12	1831–40 . . .	149
1781–1830 . .	39	1841–50 . . .	177
1831–50 . . .	66	1851–60 . . .	210
1851–65 . . .	72	1861–70 . . .	363
1866–75 . . .	82	1871–75 . . .	272

The rates for all Sweden in the last fifteen years of Morselli's tables showed as follows:—

	1861–70	1871–75
Urban	205	167
Rural	63	68
All Sweden . . .	80	81

The percentages as regarded sex showed this variation:—

	1861-70	1871-75
Males	78.1	76.3
Females . . .	21.9	23.7
Total . .	100.0	100.0

NORWAY AND DENMARK

These two countries peopled by the same race present as great a contrast as England and Ireland. The rates of suicide per million inhabitants were:—

Period	Norway	Denmark
1831–40	103	213
1841–50	108	245
1851–60	100	274
1861–70	81	282
1871–75	73	258

In Norway a law was passed in 1850 restricting the sale of liquor, which is supposed to have had some effect in diminishing suicide.

SWITZERLAND

Official returns for six years ending 1881 show the rates of suicide yearly per million inhabitants thus:—

Cantons	Catholics	Protestants	General Population
Catholics . . .	20	205	81
Protestant . . .	127	602	262
Mixed	116	360	280

It would appear that in Catholic cantons the Protestants are much less prone to suicide than where their own religion is dominant. For like reason Catholics are much

more liable to suicide in Protestant or mixed cantons than in their own.

BELGIUM

Official returns give the annual rate per million inhabitants as follows :—

1831-40	.	.	.	43	1866-75	.	.	.	67
1841-50	.	.	.	61	1881-85	.	.	.	105
1851-65	.	.	.	49	1887	.	.	.	130

The returns for the years 1881-85 showed the ratios of 1000 suicides as follows :—

Method				Men	Women	Total
Hanging	.	.	.	425	53	478
Drowning	.	.	.	205	72	277
Firearms	.	.	.	118	3	121
Dagger	.	.	.	32	3	35
Poison	.	.	.	8	13	21
Various	.	.	.	52	16	68
	Total	.		840	160	1,000

The returns for 1887 show age ratios as follows :—

Age					Men	Women	Total
0-16	.	.	.	.	19	5	24
16-25	.	.	.	.	98	35	133
25-40	.	.	.	.	197	38	235
40-50	.	.	.	.	180	32	212
50-60	.	.	.	.	179	24	203
60-70	.	.	.	.	113	19	132
Over 70	.	.	.	.	44	17	61
	Total	.			830	170	1,000

UNITED STATES

The *New York Chronicle* in 1888 published tables covering four years for the whole of the Union, but these cannot be regarded as complete. They summed up 6283 suicides, being less than 30 per million inhabitants yearly, whereas the actual rate will hardly fall short of 60. The tables meanwhile enable us to form averages as to age and other particulars :—

Age, Years					Annual Suicides	Ratio
0-15	.	.	.	.	12	0.8
15-20	.	.	.	.	88	5.7
21-30	.	.	.	.	205	13.3
31-40	.	.	.	.	213	13.9
41-50	.	.	.	.	231	15.1
51-60	.	.	.	.	175	11.5
Over 60	.	.	.	.	607	39.7
	Total	.	.		1,531	100.0

The condition showed the following figures :—

	Men	Women	Total	Ratio
Married	.	.	513	150	663	53.3
Single	.	.	330	118	448	36.2
Widowed	.		72	32	104	8.4
Divorced	.		16	10	26	2.1
Total	.		931	310	1,241	100.0

The principal professions of suicides were :—

				Number	Ratio
Farmers	.	.	.	195	15.8
Labourers	.	.	.	50	4.0
Courtesans	.	.	.	33	2.6
Innkeepers	.	.	.	30	2.4
Various	.	.	.	933	75.2
	Total	.		1,241	100.0

Some of those in the first table were not classified as to condition or profession.

AUSTRALIA

Coghlan's tables for thirteen years ending 1888 give the rates per million inhabitants yearly thus :—

Tasmania	.	.	.	51	New Zealand	.	.	95
South Australia	.	.	87	Victoria	.	.	113
New South Wales	.	88	Queensland	.	.	135

General rate for Australia was as follows :—

| 1871 | . | . | . | . | . | . | . | 86 |
| 1888 | . | . | . | . | . | . | . | 115 |

SULPHUR

The quantities exported from Sicily and those imported into Great Britain were as follows :—

Year	Export from Sicily, Tons	Import into Great Britain, Tons	Value per Ton, £
1820 . . .	18,500	4,600	10
1830 . . .	38,100	12,100	8
1840 . . .	77,800	34,400	5
1850 . . .	85,000	33,500	8
1860 . . .	140,000	50,200	9
1870 . . .	173,000	53,300	6
1880 . . .	287,000	46,400	5
1888 . . .	324,000	40,000	4

There are 18,000 miners engaged at the sulphur deposits in Sicily.

SURGERY

The mortality after amputation in various hospitals was stated to be in 1880 thus :—

Deaths per 100

London	.	.	.	37.8	Edinburgh	.	.	43.3
Paris	.	.	.	60.0	Glasgow	.	.	36.0
Zürich	.	.	.	46.0	English rural	.	17.8

In such German hospitals as have adopted the Listerian method, invented by Professor Lister of Glasgow, the death-rate after amputation has fallen to 4.7. Some English hospitals showed the following :—

Death-Rate per Cent.

London			Rural		
University	.	25.7	Tewkesbury	.	3.8
St. Bartholomew's	.	36.6	St. Leonard's	.	10.0
Guy's	.	38.2	St. Alban's	.	14.2
St. George's	.	38.8	Ashford	.	20.0
Whitechapel	.	47.3	Stockton	.	25.0

	Death-Rate per Cent.				
Amputation	English Rural	Glasgow	Glasgow	Guy's	University College, London
	1859-78	1850-74	1795-1838	1854-61	1871
Arm . .	8.1	34.0	48.0	20.0	Fore-arm, 5.0
Leg . .	15.5	45.0	68.0	39.0	Leg, 22.6
Thigh . .	33.3	52.0	92.0	50.0	Shoulder, 37.4
General .	17.8	36.0	51.0	38.2	Hip, 40.0

The following tables refer to various campaigns :—

	Death-Rate per Cent.	
	Arm	Leg or Thigh
Peninsula	12.9	20.8
Waterloo	11.6	26.8
Crimea	15.5	50.2
United States (1863) .	21.2	64.0

The amputation death-rates of the Crimean and American campaigns may be compared (Erichsen) thus :—

	Crimea	United States
Hand	...	1.6
Arm	19.0	21.2
Shoulder	35.0	39.2
Foot	16.0	9.2
Leg	37.0	26.0
Knee	57.0	55.0
Thigh	64.0	64.4
Hip	100.0	85.7

Schede compares the results of Lister's with other systems thus :—

	Percentage of Deaths		
	Old System	Kronlein's	Lister's
Arm	10	14	0
Leg	33	18	2
Thigh	41	36	7
Shoulder . . .	52	20	11
General . . .	30	20	4

Bugnot compares the general mortality of divers systems thus: Lister, 11 ; Kronlein, 17 ; Simpson, 33 ; Trelat, 46 ; old method, 53 per cent.

In previous records the average mortality of amputations was estimated per cent. thus: Lawrie, 37 ; Malgaigne, 39 ; Le Fort, 43 ; Trelat, 46 ; Churchill, 49. There were 790 cases at the Paris Hospital in 1841–46, of whom 320 died, say 40 per cent. The *Dict. Sci. Med.*

records 5000 amputations, of which 1900 proved fatal, say 38 per cent., the respective rates of mortality being :—

Fore-arm . . .	13.4	Leg . . .	50.6
Arm	51.5	Thigh . . .	84.8

Hall observed in the Crimea that the mortality after wounds and amputations was much greater in summer and autumn than in winter.

In the ligature of arteries, Philippe and Inman recognise a death-rate of 33 per cent. ; Norrit, 38 per cent. In cases of hernia : Textor, 43 ; Cooper, 47 ; London hospitals, 51 ; and Malgaigne, 60.

Sir Spencer Wells gives the age and death-rate of cases of ovariotomy thus :—

Age	Ratio of Cases	Deaths per 100
Under 30	27.6	25
30–40	26.4	27
40–50	24.6	23
Over 50	21.4	29
Total . .	100.0	26

The above is the result of 500 cases. He shows also that in 1000 operations for this disease the death-rate has been diminishing thus :—

	Deaths		Deaths
1st hundred	34	6th hundred	28
2nd ,, ...	28	7th ,, ...	24
3rd ,, ...	23	8th ,, ...	24
4th ,, ...	22	9th ,, ...	17
5th ,, ...	20	10th ,, ...	11

T.

TALLOW

The production of tallow (including lard) averages 18 per cent. of that of meat, and is shown approximately as follows :—

	Tons		Consumption, Lbs. per Inhab.
	Production	Consumption	
United Kingdom .	200,000	290,000	18
France . . .	215,000	265,000	16
Germany . . .	250,000	270,000	12
Russia . . .	340,000	335,000	8
Austria . . .	200,000	190,000	11
Italy . . .	65,000	65,000	4
Spain . . .	95,000	95,000	22
Portugal . .	15,000	15,000	8
Sweden . . .	25,000	27,000	12
Norway . .	12,000	12,000	11
Denmark . .	20,000	20,000	22
Holland . .	20,000	90,000	48
Belgium . .	20,000	25,000	9
Various . .	80,000	80,000	...
Europe . .	1,557,000	1,779,000	12
United States . .	880,000	700,000	25
Canada . .	40,000	40,000	18
Australia . .	99,000	60,000	36
Argentina .	50,000	35,000	22
Total . .	2,617,000	2,614,000	...

The use of tallow candles has greatly declined since the introduction of gas, petroleum, and electric light, but the consumption of tallow has, nevertheless, steadily increased, as well as that of lard.

The countries with a surplus of tallow and lard exported thus :—

	Tons Exported				
	1830	1860	1870	1880	1888
Russia . .	66,400	40,300	21,100	10,400	3,000
U. States .	2,200	34,000	32,000	220,000	180,000
Argentina .	8,600	45,300	62,400	23,300	15,000
Australia .	...	6,200	25,300	32,100	30,500

The production and consumption of tallow and lard in the United Kingdom were approximately as follows :—

	Tons			Consumption, Lbs. per Inhab.
	Produced	Consumed	Imported	
1830 . . .	170,000	226,600	56,600	21
1840 . . .	175,000	231,300	56,300	21
1850 . . .	180,000	242,200	62,200	21
1860 . . .	185,000	265,100	80,100	22
1870 . . .	195,000	283,000	88,000	21
1880 . . .	200,000	299,000	99,000	19
1888 . . .	200,000	287,000	87,000	18

The production and consumption in the United States were approximately as follows :—

Year	Tons			Consumption, Lbs. per Inhab.
	Produced	Consumed	Exported	
1860 . . .	530,000	496,000	34,000	33
1870 . . .	460,000	428,000	32,000	24
1880 . . .	760,000	540,000	220,000	24
1888 . . .	880,000	700,000	180,000	25

TAXES

Omitting public services, such as the post-office and revenues from crown lands and forests, the amount levied by taxation yearly (1888–90) was about as follows :—*

	Amount, £			Shillings per Inhab.	Percentage of Earnings
	National	Local	Total		
U. Kingdom	73.440,000	45,780,000	119,220,000	63	9.3
France . .	102,000,000	40,800,000	142,800,000	74	13.6
Germany .	64,900,000	44,000,000	108,900,000	45	10.4
Russia . .	61,200,000	11,200,000	72,400,000	16	7.4
Austria . .	50,100,000	5,300,000	55,400,000	28	9.5
Italy . . .	53,800,000	27,200,000	81,000,000	54	22.0
Spain . .	31,900,000	5,000,000	36,900,000	41	12.3
Portugal . .	6,600,000	1,000,000	7,600,000	33	14.0
Sweden . .	3,670,000	3,300,000	6,970,000	28	6.7
Norway . . .	1,480,000	950,000	2,430,000	24	6.0
Denmark . .	2,530,000	1,000,000	3,530,000	35	5.5
Holland . .	8,300,000	6,300,000	14,600,000	64	15.1
Belgium . .	6,800,000	3,900,000	10,700,000	36	6.0
Greece . .	2,400,000	...	2,400,000	24	...
Roumania .	4,200,000	...:	4,200,000	17	...
Servia. . .	1,400,000	...	1,400,000	14	...
Europe . .	474,720,000	195,730,000	670,450,000	44	11.0

* The taxes of Prussia, Bavaria, &c., are included as national in Germany, but those of the States of New York, Pennsylvania, &c., are included among local in the United States. Local taxes of Canada and some other countries are in blank, because they cannot be ascertained.

	Amount, £			Shillings per Inhab.	Percentage of Earnings
	National	Local	Total		
U. States .	73,800,000	52,200,000	126,000,000	40	5.4
Australia. .	10,700,000	...	10,700,000	60	7.2
Canada . .	6,000,000	...	6,000,000	24	4.6
Argentina .	9,700,000	...	9,700,000	54	11.2
India . . .	47,500,000	...	47,500,000	5	...
Total .	622,420,000	247,930,000	870,350,000	...	...

Block's estimate of the percentage of direct taxes in the total amount raised by taxation in the several countries in 1872 compares with the percentage in 1889 as follows :—

Percentage of Direct Taxation

	1872	1889		1872	1889
U. Kingdom .	15	21	Sweden . .	24	17
France . . .	25	18	Norway . .	0	0
Germany . .	34	19	Denmark . .	28	20
Russia . . .	20	13	Holland . .	33	27
Austria . . .	46	24	Belgium . .	31	31
Italy . . .	51	30	Switzerland .	34	0
Spain . . .	44	39	Greece . . .	48	37
Portugal . .	30	15	U. States . .	0	0

Except in the countries of the United Kingdom and Belgium, the ratio of direct taxation has declined very notably.

The following table, by Professor Bochk in 1885, shows the sums levied on the principal articles of consumption :—

	Amount, £					Pence per Inhabitant				
	Liquor	Coffee, &c.	Sugar	Tobacco	Total	Liquor	Coffee, &c.	Sugar	Tobacco	Total
U. Kingdom .	19,000,000	4,400,000	...	8,600,000	32,000,000	130	30	...	60	220
France . . .	10,300,000	4,600,000	6,200,000	11,800,000	32,900,000	65	30	40	75	210
Germany . .	2,600,000	2,300,000	2,300,000	1,400,000	8,600,000	14	12	12	7	45
Russia . . .	22,800,000	1,800,000	1,200,000	1,600,000	27,400.000	10	9	7	50	76
Austria . . .	1,600,000	1,400,000	1,100,000	8,200,000	12,300,000	65	5	3	5	78
Italy	800,000	900,000	2,300,000	4,000,000	8,000,000	40	10	24	7	81
Spain . . .	300,000	300,000	200,000	3,200,000	4,000,000	27	20	28	15	90
Sweden . . .	800,000	200,000	500,000	100,000	1,600,000	112	2	...	2	116
Norway . . .	200,000	200,000	200,000	100,000	700,000	50	6	16	6	78
Denmark . .	200,000	100,000	300,000	...	600,000	20	10	35	5	70
Holland . . .	2,100,000	...	600,000	...	2,700,000	26	...	8	...	34
Belgium . . .	1,100,000	100,000	400,000	100,000	1,700,000	6	7	20	34	67
Switzerland .	300,000	...	100,000	...	400,000	4	5	3	48	60
Europe . . .	62,100,000	16.300,000	15,400,000	39,100,000	132,900,000	48	12	11	31	104

In some countries the salt-tax is not distinguished, and hence the blanks under that column in the following table, which shows as nearly as possible, by latest accounts, the sums paid as taxes on articles of consumption :—

	Sugar, £	Liquor, £	Salt, £	Tobacco, £	Sundries, £	Total, £	Shillings per Inhab.
United Kingdom . .	...	27,200,000	...	8,900,000	4,800,000	40,900,000	21
France	7,100,000	17,000,000	1,300,000	14,900,000	4,600,000	44,900,000	23
Germany	2,600,000	13,700,000	2,000,000	1,500,000	2,300,000	22,100,000	9
Russia	1,700,000	25,700,000	1,300,000	2,600,000	1,800,000	33,100,000	7
Austria	2,800,000	4,900,000	2,900,000	10,200,000	1,400,000	22,200,000	11
Italy	2,300,000	800,000	2,500,000	7,600,000	1,000,000	14,200,000	9
Spain	200,000	300,000	...	6,400,000	300,000	7,200,000	8
Portugal	...	200,000	...	900,000	100,000	1,200,000	5
Sweden	500,000	800,000	...	100,000	200,000	1,600,000	7
Norway	200,000	300,000	...	100,000	200,000	800,000	8
Denmark	300,000	200,000	. .	...	100,000	600,000	6
Holland	600,000	2,100,000	300,000	...	600,000	3,600,000	16
Belgium	200,000	1,400,000	...	100,000	100,000	1,800,000	6
Europe . . .	18,500,000	94,600,000	10,300,000	53,300,000	17,500,000	194,200,000	13
United States . .	11,700,000	22,200,000	100,000	8,900,000	1,400,000	44,300,000	14
Total . .	30.200.000	116,800,000	10,400,000	62,200,000	18,900,000	238,500,000	13

A simple classification of the national taxes in various countries is as follows ; customs, excise, stamps and death duties, property and income, viz. :—

	Customs	Excise	Stamps, &c.	Property	Sundries	Total
	£ Sterling					
United Kingdom . .	20,000,000	25,500,000	12,700,000	15,300,000	...	73,500,000
France	15,000,000	39,000,000	26,000,000	14,300,000	7,700,000	102,000,000
Germany	13,500,000	22,100,000	9,000,000	12,500,000	7,800,000	64,900,000
Russia	12,100,000	30,000,000	3,300,000	8,200,000	7,600,000	61,200,000
Austria	3,900,000	22,200,000	6,600,000	11,700,000	5,700,000	50,100,000
Italy	10,600,000	13,400,000	7,900,000	16,200,000	5,700,000	53,800,000
Spain	6,900,000	7,200,000	3,600,000	6,600,000	7,600,000	31,900,000
Portugal	3,100,000	1,300,000	1,000,000	1,000,000	200,000	6,600,000
Sweden	2,100,000	800,000	200,000	600,000	....	3,700,000
Norway	1,100,000	300,000	100,000	...	...	1,500,000
Denmark	1,400,000	...	300,000	500,000	300,000	2,500,000
Holland	400,000	3,600,000	1,800,000	1,900,000	600,000	8,300,000
Belgium	1,100,000	1,400,000	2,000,000	1,800,000	500,000	6,800,000
Europe . . .	91,200,000	166,800,000	74,500,000	90,600,000	43,700,000	466,800,000
United States . . .	46,600,000	27,200,000	...	...	...	73,800,000
Canada	4,500,000	1,300,000	...	...	...	5,800,000
Australia	8,200,000	2,500,000	...	...	....	10,700,000
India	1,200,000	17,500,000	3,300,000	19,500,000	6,000,000	47,500,000
Egypt	1,100,000	600,000	...	5,200,000	600,000	7,500,000
Total . .	152,800,000	215,900,000	77,800,000	115,300,000	50,300,000	612,100,000

Few articles of consumption are more generally or more heavily taxed than coffee. In 1889 the import duty on this article in various countries was as follows :—

Duty per Ton

	£		£
United Kingdom . .	14	Sweden . . .	20
France . . .	62	Norway . . .	22
Germany . . .	20	Denmark . . .	9
Russia	15	Belgium . . .	4
Austria . . .	40	Switzerland . .	2
Italy	56	Greece . . .	19
Spain	20	Roumania . . .	8
Portugal . . .	25	United States . .	0

Holland is the only country of Europe which admits coffee free of duty.

British cotton manufactures are heavily taxed in many countries, the rates "ad valorem" according to tariffs in 1884 showing in the various countries thus :—

	Per Cent.		Per Cent.		Per Cent.
Argentina . .	30	China . . .	5	S. Australia .	10
Austria . .	18	Greece . . .	15	Tasmania . .	10
Belgium . .	15	Guiana . . .	5	Turkey . .	7
Brazil . .	30	Holland . .	15	Uruguay . .	12
Canada . .	20	India . . .	5	Victoria . .	25
Cape . . .	10	New Zealand	15	West Indies .	12
Chili . . .	25	Queensland .	5		

While the ratio of import dues is being reduced by Great Britain, it has increased in the rest of the world by more than one-fourth in the last ten years.

The customs dues of various nations compare with the value of merchandise imported (such dues being, as a rule, levied on imports, and not on exports) as follows :—

	Customs Dues, £		Imports, £		Duty, Percentage	
	Average 1871-80	1889	1871-80	1889	1871-80	1889
	£					
United Kingdom . . .	20,100,000	20,000,000	371,400,000	427,000,000	5.4	4.7
France	10,300,000	15,000,000	157,000,000	167,000,000	6.6	9.0
Germany	8,600,000	13,500,000	174,000,000	204,000,000	5.0	6.7
Russia	10,500,000	12,100,000	49,000,000	39,000,000	21.4	31.0
Austria	2,600,000	3,900,000	57,000,000	48,000,000	4.5	8.1
Italy	5,100,000	10,600,000	47,200,000	56,000,000	10.9	18.8
Spain	4,400,000	6,900,000	18,300,000	29,000,000	24.0	23.8
Portugal	1,800,000	3,100,000	7,000,000	11,000,000	25.7	28.2
Belgium	800,000	1,100,000	56,200,000	61,000,000	1.4	1.8
Holland	400,000	400,000	63,000,000	106,000,000	0.6	0.4
Denmark	900,000	1,400,000	13,000,000	15,000,000	7.0	9.3
Sweden	1,600,000	2,100,000	14,000,000	16,000,000	11.5	13.2
Norway	800,000	1,100,000	7,800,000	9,000,000	10.3	12.2
Europe	67,900,000	91,200,000	1,034,900,000	1,188,000,000	6.5	7.7
United States . . .	26,650,000	46,600,000	98,800,000	154,000,000	26.3	30.3
Canada	2,700,000	4,500,000	17,900,000	23,000,000	15.0	19.6
Australia	4,300,000	8,200,000	40,200,000	68,000,000	10.7	12.1
India	2,000,000	1,200,000	36,800,000	54,000,000	5.5	2.2
Egypt	800,000	1,100,000	5,200,000	7,000,000	15.4	15.7
Total . . .	103,750,000	152,800,000	1,233,800,000	1,494,000,000	8.3	10.2

If the commerce of the United Kingdom be subtracted, the account will stand thus for the rest of the world :—

Period	Customs, £	Imports, £	Duty per Cent.
1871–80 . . .	83,600,000	863,000,000	9.8
1880	132,800,000	1,067,000,000	12.5

Property and income or personal taxes are approximately as follows :—

	Land-Tax	House-Tax	Income-Tax	Total
	£	£	£	£
U. Kingdom	1,020,000	1,940,000	12,700,000	15,660,000
France . .	4,800,000	4,500,000	5,000,000	14,300,000
Germany .	4,000,000	2,000,000	6,500,000	12,500,000
Russia . .	4,000,000	...	9,200,000	13,200,000
Austria . .	5,000,000	3,000,000	3,400,000	11,400,000
Italy . . .	4,300,000	2,700,000	9,200,000	16,200,000
Spain . .	6,600,000	...	...	6,600,000
Portugal .	700,000	100,000	200,000	1,000,000
Sweden .	400,000	...	200,000	600,000
Denmark .	400,000	100,000	...	500,000
Holland . .	1,000,000	...	900,000	1,900,000
Belgium .	1,000,000	...	800,000	1,800,000
Europe . .	33,220,000	14,340,000	48,100,000	95,660,000

The income-tax collected in the United Kingdom includes £1,200,000 from land and £2,500,000 from house property, for which reason the above items ought more correctly to read thus :—

	£
Land-tax	2,220,000
House-tax	4,440,000
Income-tax	9,000,000
Total . . .	15,660,000

Taxes on land in various countries are described at length under *Land-taxes.*

UNITED KINGDOM

The *Financial Reform Almanack* sums up from parliamentary blue-books the taxation and expenditure of the United Kingdom in eighty-nine years as follows :—

	Millions £ Sterling								
	Revenue				Expenditure				
Period	Customs	Excise	Sundries	Total	Debt	Army	Navy	Sundries	Total
1801–10	123	215	206	544	216	230	148	72	666
1811–20	150	272	252	674	292	290	152	91	825
1821–30	175	252	172	599	297	96	60	101	554
1831–40	204	163	146	513	290	83	48	103	524
1841–50	227	145	186	558	291	93	69	100	553
1851–60	237	181	244	662	290	151	107	124	672
1861–70	237	204	289	730	264	162	112	157	695
1871–80	217	271	313	801	276	176	106	212	770
1881–89	178	215	408	801	260	167	109	254	790
89 yrs.	1,748	1,918	2,216	5,882	2,476	1,448	911	1,214	6,049

The above table, however, includes not only taxes, but likewise public services, such as the Post-Office. The principal items of taxation have been in recent years as follows :—

	1853	1860	1870	1880	1889
	£	£	£	£	£
Customs	22,140,000	24,390,000	21,500,000	19,170,000	19,970,000
Excise	15,790,000	20,240,000	21,880,000	25,220,000	25,470,000
Income-tax	5,510,000	9,600,000	10,040,000	9,230,000	12,700,000
Stamps	6,920,000	8,040,000	9,290,000	11,310,000	12,340,000
Land-tax, &c.	3,380,000	3,230,000	4,500,000	2,670,000	2,960,000
Total . .	53,740,000	65,500,000	67,210,000	67,600,000	73,440,000

The following is a synopsis of the import tariff at four dates of distinct fiscal policy :—

	Duties Expressed in Shillings			
	1787	1819	1834	1890
Bacon, cwt. . .	47	56	28	...
Books, ,, . .	20	100	100	...
Butter, ,, . .	2½	20	20	...
Cheese, ,, . .	1½	10	10	...
Cocoa, ,, . .	240	280	19	2
Coffee, ,, . .	224	280	140	14
Cotton, ,, . .	9	9	3	...
Eggs, ,, . .	3	6	6	...
Paper, ,, . .	?	94	28	...
Potatoes, ,, . .	4	2	2	...
Rice, ,, . .	7	15	15	...
Soap, ,,. .	44	90	90	...
Spirits, gallon . .	6	22	22	10
Sugar, cwt. . .	27	63	63	...
Tallow, ,, . .	...	3	1	...
Tea, ,, . .	45	224	240	37
Tobacco, ,, . .	392	448	784	356
Wine, gallon . .	5	14	5½	1
Wool, cwt. . .	0	56	9	...

Blanks in the above table signify duty-free. Grain was subject to import dues on a sliding scale, according to market prices in Great Britain, down to 1846.

Customs dues are levied on fewer articles than formerly, the ratio of import duties to the value of all imported merchandise showing as follows :—

Year	Per Cent.	Year	Per Cent.	Year	Per Cent.
1580 . . .	1	1720 . . .	21	1844 . . .	40
1614 . . .	8	1800 . . .	20	1866 . . .	10
1684 . . .	13	1827 . . .	46	1889 . . .	5

The amount of customs dues per inhabitant at various dates was as follows :—

Year	Customs, £	Shillings per Inhabitant
1684 . . .	530,000	2.0
1720 . . .	1,555,000	5.1
1800 . . .	6,788,000	13.0
1844 . . .	24,277,000	18.0
1889 . . .	19,970,000	10.5

The amount per head is greater than in European countries (except Portugal, Denmark, and Norway), but less than in the United States, Canada, or Australia.

The principal items paying duty in recent years were :—

	1853	1860	1870	1880	1889
	£	£	£	£	£
Sugar	4,050,000	6,010,000	5,400,000	...	...
Tea	5,980,000	5,400,000	2,640,000	3,700,000	4,630,000
Coffee	440,000	440,000	350,000	210,000	180,000
Spirits	2,580,000	2,520,000	4,190,000	4,680,000	4,300,000
Wine	1,790,000	1,630,000	1,480,000	1,390,000	1,210,000
Tobacco	4,540,000	5,600,000	6,610,000	8,560,000	8,860,000
Grain	400,000	500,000	100,000	...	...
Sundries	2,360,000	2,290,000	730,000	630,000	790,000
Total . .	22,140,000	24,390,000	21,500,000	19,170,000	19,970,000

Excise is the tax which produces the largest sum to the exchequer. The articles on which this tax is levied were as follows :—

	1853	1860	1870	1880	1889
	£	£	£	£	£
Spirits	6,230,000	9,780,000	10,970,000	13,630,000	12,880,000
Malt	5,320,000	6,650,000	6,480,000	6,730,000	8,770,000
Licenses	1,180,000	1,460,000	3,700,000	3,500,000	3,510,000
Sundries	3,060,000	2,350,000	730,000	1,360,000	310,000
Total . .	15,790,000	20,240,000	21,880,000	25,220,000	25,470,000

If we sum up all the liquor-duties we find as follows :—

	1853	1860	1870	1880	1883
	£	£	£	£	£
British spirits	6,230,000	9,780,000	10,970,000	13,630,000	12,880,000
Imported spirits . . .	2,580,000	2,520,000	4,190,000	4,680,000	4,300,000
Wines	1,790,000	1,630,000	1,480,000	1,390,000	1,210,000
Malt	5,320,000	6,650,000	6,480,000	6,730,000	8,770,000
Total . .	15,920,000	20,580,000	23,120,000	26,430,000	27,160,000

Since 1881 the malt-tax is termed beer-tax.

The receipts from the excise at various dates have been :—

Year	Amount, £	Year	Amount, £
1744 . . .	3,750,000	1830 . . .	18,640,000
1786 . . .	5,540,000	1850 . . .	15,280,000
1808 . . .	19,870,000	1889 . . .	25,470,000

Stamp-duties were invented by Charles II. ; the revenue derived from them showed as follows :—

Year	Amount, £	Year	Amount, £
1800 . . .	3,130,000	1850 . . .	6,560,000
1820 . . .	6,560,000	1870 . . .	9,290,000
1840 . . .	6,730,000	1889 . . .	12,340,000

Stamp-duties show as follows since 1853 :—

	1853	1860	1870	1880	1889
	£	£	£	£	£
Legacies	2,420,000	3,340,000	4,720,000	6,230,000	6,560,000
Insurance	1,350,000	1,760,000	520,000	120,000	170,000
Deeds	1,380,000	1,380,000	1,690,000	2,080,000	3,150,000
Bills	610,000	580,000	850,000	840,000	820,000
Receipts	180,000	390,000	580,000	810,000	1,040,000
Sundries	980,000	590,000	930,000	1,230,000	600,000
Total . .	6,920,000	8,040,000	9,290,000	11,310,000	12,340,000

Among the minor taxes included above under excise or stamp-duties, the product of some in 1889 was as follows :—

	Number	Amount, £		Amount, £
Dogs . . .	980,000	370,000	Medicines	200,000
Guns . . .	170,000	85,000	Plate . .	78,000
Game . .	62,000	160,000	Railways	310,000
Servants . .	184,000	138,000	Crests .	75,000
Carriages .	492,000	500,000	Cards .	17,000

Income-tax.—This was introduced by Pitt as a war-tax in 1798. The rate and product at various dates have been :—

Year	Pence per £	Product, £	Per Penny, £
1803	12	4,700,000	400,000
1808	24	16,500,000	700,000
1844	7	5,190,000	740,000
1856	16	15,070,000	960,000
1875	2	4,310,000	2,150,000
1889	6	12,700,000	2,100,000

The tax was repealed in 1816, revived in 1842, extended to Ireland in 1853. The principal features since 1842 were :—

Years	Average Rate (Pence)	Annual Product	Product per Penny	Product per Inhab.
		£	£	d.
1842–51	7.0	5,467,000	782,000	65
1852–61	9.8	10,224,000	1,041,000	89
1862–71	5.5	7,764,000	1,408,000	62
1872–81	3.8	7,062,000	1,868,000	52
40 years	6.0	7,625,000	1,275,000	66
1882–89	6.5	12,800,000	1,970,000	84
1889	6.0	12,700,000	2,100,000	80

The proportions of this tax collected in each of the three kingdoms were as follows :—

	1860	1870	1880	1888
England . . .	84.0	85.2	84.2	85.4
Scotland . . .	9.0	9.0	9.6	9.0
Ireland . . .	7.0	5.8	6.2	5.6
United Kingdom .	100.0	100.0	100.0	100.0

The various kinds of property or income which produced it were in the following ratio :—

	1860	1870	1880	1888
Houses . . .	18.3	17.3	20.0	21.2
Lands . . .	17.4	14.6	12.1	9.6
Professions, &c. .	64.3	68.1	67.9	69.2
Total . .	100.0	100.0	100.0	100.0

Conscience-money.—Between the years 1870 and 1880, the average sum received yearly by the Chancellor of the Exchequer for unpaid taxes was £9100, in most cases for evasion of the income-tax.

Land-tax.—This tax is said to have produced £80,000 a year in the time of Edward the Confessor, which would be equivalent in weight of silver to £250,000 of present money, and in purchasing value to one million sterling. Under William III. in 1692 it produced £500,000, which was supposed to be equal to 20 per cent. or 4s. in the pound of the rental value. Pitt also fixed it at 4s. The following table shows the sum it has actually produced at various dates in this century, and what it ought to have produced at 4s. in the pound of assessed rental :—

	Product, £	Rental, £	Tax at 4s.
			£
1810 . . .	1,420,000	41,910,000	8,400,000
1840 . . .	1,300,000	47,700,000	9,500,000
1850 . . .	1,150,000	48,400,000	9,700,000
1876 . . .	1,090,000	57,700,000	11,500,000
1880 . . .	1,050,000	59,500,000	11,900,000
1889 . . .	1,020,000	51,300,000	10,300,000

House-tax.—This was originally a window-tax, but converted into a house-duty in 1851. Under either form the product is shown thus :—

Year		Amount, £
1850		1,749,000
1876		1,410,000
1889		1,940,000

The house-duty does not extend to Ireland. In 1887 the house-rental of Great Britain was £129,800,000, whence the actual product seems to be under 4d. in the pound, or about 1½ per cent. on the assessed rental, but

it is in reality much more, as houses under £20 are exempted. The product in 1888 was :—

	Valuation, £	Tax, £
Houses	44,100,000	1,650,000
Shops, &c. . . .	18,900,000	290,000
Total . .	63,000,000	1,940,000

This gives an average all round of 8d. in the pound, say 3½ per cent.

The window-tax was introduced by William III. in 1695, and increased by the Georges, but repealed in 1851. The number of windows taxed in 1801 and 1850 was as follows :—

Year	Houses	Windows	Windows per House
1801 . . .	1,781,000	10,300,000	5.8
1850 . . .	3,648,000	21,900,000	6.0

The returns of this tax in 1850 showed as follows :—

	Houses	Tax, £	Per House
			£ s. d.
Liverpool	11,500	33,000	2 18 0
Manchester. . . .	7,900	22,000	2 15 0
Bath	3,800	22,000	5 18 0
Brighton	3,600	18,000	5 1 0
Birmingham . . .	5,400	16,000	2 19 0
Bristol	4,700	15,000	3 4 0
Leeds	2,500	8,100	3 5 0

It was not extended to Ireland, and the proceeds from Great Britain in 1850 were as follows :—

Windows	Houses			Duty, £		
	England	Scotland	Great Britain	England	Scotland	Great Britain
8–10 . .	156,000	15,000	171,000	167,000	15,000	182,000
11–20 .	216,000	15,000	231,000	687,000	48,000	735,000
21–30 .	48,000	4,000	52,000	366,000	25,000	391,000
Over 30 .	30,000	1,600	31,600	404,000	37,000	441,000
Total .	450,000	35,600	485,600	1,624,000	125,000	1,749,000

The tax was graduated thus according to the number of windows :—

Windows	Tax		Windows	Tax	
	£ s. d.			£ s. d.	
8 . .	0 16 0		20 . .	5 12 0	
10 . .	1 8 0		50 . .	17 5 0	
15 . .	3 10 0		100 . .	29 8 0	

Newspaper-duty was invented by Queen Anne, a penny on each sheet, which George III. raised ultimately to 4d. The tax was reduced to one penny per sheet in 1836, and abolished in 1855. The circulation of newspapers was as follows at various dates :—

Year	Tax, Pence	Circulation
1753	1	7,400,000
1790	2	14,100,000
1810	3½	20,200,000
1820	4	24,900,000
1843	1	56,400,000

Advertisement-duty.—This was another of Queen Anne's taxes, and was fixed for many years at 3s. 6d. per advertisement in England and 2s. 6d. in Ireland. It was

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reduced by one-half in 1833 and abolished in 1853. In 1851 the number of advertisements that paid duty was :—

England	.	.	.	.	1,770,000
Scotland	.	.	.	.	250,000
Ireland .	.	.	.	.	240,000
United Kingdom .	.	.	.	**2,260,000**

Soap-duty.—Another of Queen Anne's taxes, dating from 1711. It was at first £28 per ton, and produced approximately as follows :—

Year				Tons, Soap	Duty, £
1801	.	.	.	25,000	500,000
1811	.	.	.	34,000	700,000
1821	.	.	.	43,000	900,000
1831	.	.	.	55,000	1,200,000
1840	.	.	.	88,000	900,000
1852	.	.	.	97,000	1,130,000

Paper-duty.—Invented by William III. in 1694. It acted as an effectual check on knowledge, so much so that Charles Knight had to pay £20,000 on the paper consumed in his *Penny Cyclopædia* of 1830, which caused him to lose money in so useful a work. Porter gives the consumption of paper and amount of duty as follows :—

Year	Tons	Tax, £	£ per Ton
1803	14,000	400,000	28
1811	17,000	480,000	28
1821	22,000	580,000	28
1831	28,000	730,000	28
1841	44,000	640,000	14
1860	...	1,350,000	...

The duty was repealed by Mr. Gladstone in 1861.

Salt-duty.—Invented by Queen Anne in 1702. During the French war it was raised to £30 per ton, being fifteen times the value of the salt. The consumption then averaged 210,000 tons, or 16 lbs. per inhabitant, and when the tax was abolished in 1825 it rose very rapidly.

Carriage-duty.—The number of persons assessed to this tax at various dates was as follows :—

Year				Number	Per 10,000 Pop.
1812	.	.	.	63,100	52
1830	.	.	.	85,100	51
1860	.	.	.	245,000	112
1870	.	.	.	325,000	125
1880	.	.	.	463,000	154
1888	.	.	.	492,000	150

The carriages paying duty in 1888 were :—

Hackney carriages	.	.	.	53,600
Private	,,	one horse	.	358,000
,,	,,	two ,,	.	80,600
		Total	.	**492,200**

Servant-duty.—This was invented by George III. during the American war, and the number of servants taxed at various dates was as follows :—

Year	Number	Year	Number
1812 . . .	86,100	1876 . .	220,000
1831 . . .	101,800	1888 . .	184,000

This tax is only on male servants in Great Britain, that on female servants having been repealed in 1792.

Legacy Duties.—These began in 1796, and comprise legacy, succession, and probate duties ; they range from

1 to 11½ per cent. according to relationship. The amount of property on which these duties were paid was :—

	1840	1873	1888
	£	£	£
England . . .	47,100,000	106,800,000	170,500,000
Scotland . . .	3,100,000	14,200,000	19,000,000
Ireland	4,500,000	8,400,000	12,100,000
United Kingdom	54,700,000	129,400,000	201,600,000

Excluding the property falling under succession-duty, that which came under probate-duty in the United Kingdom in 1888 was as follows :—

Estates of	Number	Value, £
Under £1000 . . .	31,079	10,600,000
£1000–£4000 . .	8,343	17,200,000
£4000–£10,000 . .	2,982	19,200,000
£10,000–£50,000 .	2,079	44,100,000
Over £50,000 . .	432	67,000,000
Total . .	44,915	158,100,000

For local rates and taxes see *Local Taxation.*

FRANCE

Some of the principal taxes are shown as follows :—

	Amount, £		Shillings per Inhabitant	
	1880	1890	1880	1890
Customs . . .	12,400,000	15,000,000	6.6	8.0
Property . . .	7,000,000	7,300,000	3.6	3.8
Sugar	4,400,000	7,100,000	2.3	3.7
Windows . . .	1,700,000	2,000,000	0.9	1.1
Liquor	17,300,000	17,000,000	9.2	9.2
Licenses . . .	4,000,000	4,200,000	2.1	2.2
Registration . .	19,500,000	20,400,000	10.4	11.0
Stamps . . .	5,600,000	6,400,000	3.0	3.5
Tobacco . . .	13,700,000	14,900,000	7.2	8.0
Sundries . . .	7,400,000	7,700,000	3.9	4.2
Total . .	93,000,000	102,000,000	49.2	54.7

The increase of taxation, national and local, has been very great in the past sixty years, viz. :—

Year	National, £	Local, £	Total, £	Shillings per Inhabitant
1830	37,600,000	7,100,000	44,700,000	28
1840	44,200,000	8,800,000	53,000,000	31
1850	52,200,000	11,700,000	63,900,000	35
1860	65,700,000	18,100,000	83,800,000	45
1870	68,500,000	21,300,000	89,800,000	48
1880	93,000,000	32,400,000	125,400,000	66
1890	102,000,000	40,800,000	142,800,000	75

Tobacco.—This is one of the principal taxes, and shows as follows :—

Year	Amount, £	Year	Amount, £
1815 . . .	2,000,000	1860 . . .	7,800,000
1830 . . .	2,700,000	1890 . . .	14,900,000

Registration.—This is mostly on transfer of property, and shows thus :—

Year	Amount, £	Year	Amount, £
1830 . . .	6,100,000	1871 . . .	15,000,000
1850 . . .	8,100,000	1880 . . .	19,500,000
1860 . . .	11,000,000	1890 . . .	20,400,000

Liquor-duties were as follows :—

Year	Amount, £	Year	Amount, £
1830 . . .	4,100,000	1870 . . .	9,100,000
1850 . . .	4,300,000	1886 . . .	17,000,000

The *octroi* and other local taxes are fully described under *Local Taxation.*

GERMANY

Apart from the taxes levied in each particular State, there are the following imperial ones :—

	Amount, £		Shillings per Inhabitant	
	1885	**1890**	**1885**	**1890**
Customs . . .	10,400,000	13,500,000	4.7	5.6
Salt	1,900,000	2,000,000	0.9	0.8
Sugar	1,600,000	2,600,000	0.7	1.1
Tobacco . . .	400,000	500,000	0.2	0.2
Liquor	2,900,000	7,700,000	1.3	3.3
Stamps . . .	1,100,000	1,400,000	0.5	0.6
Total . .	18,300,000	27,700,000	8.3	11.6

In 1887 was published the following statement of the customs dues collected throughout Germany since 1835 :—

Year	Sum, £	Period	Average, £	Shillings per Inhab.
1835	2,400,000	1835-40	2,700,000	2.1
1850	3,400,000	1841-50	3,800,000	2.6
1860	3,500,000	1851-60	3,700,000	2.3
1870	4,300,000	1861-70	3,700,000	2.1
1880	7,100,000	1871-80	6,500,000	3.0
1887	12,700,000	1881-87	11,200,000	4.8

The duty on spirits was raised in 1887, and now produces £6,700,000.

The import dues collected on grain in 1889 were as follows :—

	Tons	Duty, £	Shillings per Ton
Wheat . . .	370,000	930,000	50
Rye . . .	750,000	1,870,000	50
Oats . . .	260,000	520,000	40
Barley . . .	630,000	710,000	23
Various . . .	600,000	680,000	23
Total .	2,610,000	4,710,000	38

The principal taxes (not local or municipal) levied in the several States of Germany may be summed up approximately thus :—

	Direct, £	Indirect, £	Total, £
Prussia . .	8,300,000	14,100,000	22,400,000
Bavaria . .	1,300,000	4,500,000	5,800,000
Saxony . .	1,100,000	400,000	1,500,000
Wurtemburg .	600,000	600,000	1,200,000
Baden . .	600,000	600,000	1,200,000
Small States .	1,800,000	3,300,000	5,100,000
Total .	13,700,000	23,500,000	37,200,000

These, added to the imperial taxes before mentioned, sum up a total of £64,900,000.

Prussia has income-tax, land-tax, house-tax, and trade-tax, the aggregate of which has been as follows :—

Year	Amount, £	Shillings per Inhabitant
1880	7,600,000	5.5
1888	8,300,000	5.6

The assessments to income-tax in Prussia and Saxony will be found under the head of *Income.*

RUSSIA

The principal taxes are shown as follows :—

	Amount, £		Pence per Inhab.	
	1879	**1889**	**1879**	**1889**
Customs . .	9,200,000	12,100,000	27	32
Poll-tax . .	11,700,000	8,200,000	34	21
Liquor . .	22,800,000	25,700,000	66	68
Salt . . .	1,300,000	...	4	...
Tobacco . .	1,300,000	2,600,000	4	7
Sugar . .	500,000	1,700,000	1	4
Stamps . .	1,400,000	2,000,000	4	5
Registration .	900,000	1,000,000	2	2
Passports .	300,000	300,000	1	1
Sundries .	2,400,000	7,600,000	7	20
Total .	51,800,000	61,200,000	150	160

The above does not include revenue from crown domains or departments of public service, such as post-office. The poll-tax in 1882 was as follows :—

	No. Taxed	Amount	Pence per Head
Proprietors . .	693,000	140,000	48
Cossacks, &c. .	1,347,000	350,000	60
Serfs . . .	21,502,000	5,203,000	57
Total .	23,542,000	5,693,000	58

AUSTRIA

The principal taxes of Austria proper were as follows :—

	Amount, £		Shillings per Inhab.	
	1878	**1887**	**1878**	**1887**
Land-tax . .	3,700,000	2,900,000	3.3	2.5
House-tax . .	2,400,000	2,400,000	2.2	2.1
Income-tax .	2,000,000	2,000,000	1.8	1.7
Licences . .	900,000	900,000	0.8	0.8
Customs . .	1,900,000	3,600,000	1.7	3.2
Salt	1,900,000	1,700,000	1.7	1.5
Sugar . . .	1,400,000	2,800,000	1.3	2.4
Cattle . . .	500,000	500,000	0.5	0.5
Tobacco . .	6,000,000	6,300,000	5.4	5.8
Liquor . .	2,600,000	3,200,000	2.3	2.8
Stamps . . .	1,700,000	1,500,000	1.5	1.3
Lotteries, &c. .	3,200,000	3,300,000	2.9	2.9
Total . .	28,200,000	31,100,000	25.4	27.5

In the above table florins are taken at 24d. for 1878, and 20d. for 1887. There are also some taxes common to the whole monarchy not included above,

In Hungary the principal taxes were :—

	Amount, £		Shillings per Inhab.	
	1882	**1889**	**1882**	**1889**
Land-tax . .	2,300,000	2,100,000	3.0	2.8
House-tax . .	500,000	600,000	0.7	0.8
Licences . .	1,000,000	1,100,000	1.3	1.4
Income-tax .	800,000	1,400,000	1.0	1.8
Excise . .	1,500,000	3,300,000	2.0	4.4
Tobacco . .	3,200,000	3,900,000	4.2	5.2
Lotteries . .	2,500,000	2,100,000	3.3	2.8
Salt . . .	1,200,000	1,200,000	1.6	1.6
Registration, &c.	2,300,000	3,300,000	3.1	4.4
Total . .	15,300,000	19,000,000	20.2	25.2

Incomes from crown domains and public services are not included.

ITALY

The principal taxes are shown as follows :—

	Amount, £		Shillings per Inhab.	
	1881	1890	1881	1890
Property-tax .	7,600,000	7,000,000	5.3	4.7
Income-tax .	7,400,000	9,200,000	5.2	6.2
Grist-tax . .	1,900,000	...	1.3	...
Registration .	2,400,000	2,800,000	1.7	1.8
Legacy dues .	1,200,000	1,500,000	0.8	1.0
Stamps . . .	1,700,000	2,900,000	1.1	1.9
Octroi . . .	3,300,000	3,300,000	2.2	2.2
Customs . .	6,200,000	10,600,000	4.2	7.2
Tobacco . .	4,200,000	7,600,000	2.8	5.1
Salt	3,300,000	2,500,000	2.2	1.7
Lotteries . .	2,900,000	3,100,000	2.0	2.1
Railway-tax .	600,000	700,000	0.4	0.5
Sundries . .	...	2,600,000	...	1.7
Total . .	42,700,000	53,800,000	29.2	36.1

The above is exclusive of state properties and public services. It is to be observed that octroi is here national, in other countries a provincial tax. The grist-tax was abolished in 1884. Property-tax was made up thus :—

Year	Land-Tax, £	House-Tax, £	Total, £	Shillings per Inhab.
1870 . . .	2,320,000	880,000	3,200,000	2.5
1876 . . .	2,840,000	1,220,000	4,060,000	3.0
1890 . . .	4,250,000	2,750,000	7,000,000	4.7

Local taxes in 1885 amounted to 27 millions sterling : see *Local Taxation.*

SPAIN

The principal taxes in 1887 were as follows :—

	£	Shillings per Inhabitant
Land-tax . . .	6,600,000	7.2
Tobacco . . .	6,400,000	7.0
Stamps, &c. . .	5,600,000	6.2
Customs . . .	6,900,000	7.6
Excise . . .	6,400,000	7.0
Total . .	31,900,000	35.0

PORTUGAL

The principal taxes were as follows :—

	Amount, £		Shillings per Inhab.	
	1881	1890	1881	1890
Land-tax . .	700,000	700,000	3.1	3.0
House-tax . .	80,000	100,000	0.3	0.4
Licences . .	250,000	250,000	1.1	1.0
Tobacco . .	750,000	900,000	3.3	3.8
Customs . .	1,800,000	3,100,000	8.0	13.0
Octroi . . .	300,000	450,000	1.3	2.0
Income-tax .	180,000	200,000	0.8	0.9
Registration,&c.	950,000	900,000	4.2	4.0
Total . .	5,010,000	6,600,000	22.1	28.1

FINLAND

This is the least taxed country in Europe : total taxes £1,400,000, or 13s. per inhabitant.

SWEDEN

The principal taxes were as follows :—

	Amount, £		Shillings per Inhab.	
	1880	1890	1880	1890
Land-tax . .	250,000	440,000	1.1	1.8
Customs . .	1,350,000	2,060,000	6.0	8.4
Liquor . . .	830,000	750,000	3.7	3.0
Stamps . . .	170,000	200,000	0.8	0.8
Income-tax .	300,000	220,000	1.4	0.9
Total . .	2,900,000	3,670,000	13.0	14.9

NORWAY

The principal taxes were as follows :—

	Amount, £		Shillings per Inhab.	
	1879	1890	1879	1890
Customs . .	990,000	1,100,000	10.0	11.0
Liquor . . .	320,000	280,000	3.2	2.8
Stamps, &c. .	100,000	100,000	1.0	1.0
Total .	1,410,000	1,480,000	14.2	14.8

DENMARK

The following were the principal taxes :—

	Amount, £		Shillings per Inhab.	
	1880	1889	1880	1889
Land-tax . .	370,000	370,000	3.7	3.5
House-tax . .	110,000	140,000	1.1	1.3
Customs . .	1,100,000	1,400,000	11.0	13.3
Stamps, &c. .	480,000	620,000	4.8	5.9
Total .	2,060,000	2,530,000	20.6	24.0

HOLLAND

The principal taxes were the following :—

	Amount, £		Shillings per Inhab.	
	1879	1890	1879	1890
Land-tax . .	880,000	1,000,000	4.2	4.4
Poll-tax . . .	810,000	900,000	3.9	4.0
Liquor . . .	1,900,000	2,200,000	9.0	9.7
Customs . .	380,000	400,000	1.8	1.8
Stamps, &c. .	1,960,000	1,800,000	9.3	8.0
Excise . . .	1,300,000	1,400,000	6.2	6.1
Sundries . .	400,000	600,000	1.9	2.6
Total .	7,630,000	8,300,000	36.3	36.6

Excise was made up in 1883 as follows (exclusive of the liquor-tax) :—

	Tons	Duty, £	£ per Ton
Sugar	120,000	520,000	4.4
Salt	40,000	300,000	7.5
Soap	18,000	150,000	8.3
Beef	...	250,000	...

The number of cattle killed for market was 280,000, say about 90,000 tons, and the tax averaged, therefore, nearly £3 per ton.

BELGIUM

The principal taxes were as follows :—

	Amount, £		Shillings per Inhab.	
	1879	1890	1879	1890
Land-tax . .	890,000	960,000	3.3	3.2
Income-tax .	620,000	800,000	2.4	2.7
Customs . .	740,000	1,090,000	2.8	3.6
Liquor . . .	1,100,000	1,400,000	4.2	4.7
Registration,&c.	2,500,000	2,560,000	9.0	8.5
Total .	5,850,000	6,810,000	21.7	22.7

GREECE

The principal taxes were as follows :—

	Amount, £		Shillings per Inhab.	
	1881	1890	1881	1890
Land-tax . .	220,000	380,000	2.5	4.2
Cattle-tax . .	70,000	90,000	0.8	1.0
House-tax . .	40,000	80,000	0.4	0.9
Licences . .	50,000	100,000	0.5	1.1
Customs . .	670,000	760,000	7.5	8.4
Stamps . . .	180,000	330,000	2.0	3.6
Sundries . .	...	650,000	...	7.1
Total .	1,230,000	2,390,000	13.7	26.3

Sundries include £70,000 from salt, £140,000 from the Government monopoly of petroleum, and £240,000 from tobacco.

ROUMANIA AND SERVIA

The principal taxes are as follows (1888) :—

	Amount, £		Shillings per Inhab.	
	Roumania	Servia	Roumania	Servia
Customs . .	900,000	200,000	3.6	2.0
Excise . . .	1,600,000	800,000	6.4	8.0
Sundries . .	1,700,000	400,000	6.8	4.0
Total .	4,200,000	1,400,000	16.8	14.0

TURKEY

The only taxes of which much is known are those on salt and tobacco (mortgaged to bondholders), which see under the section of *Finance.*

EGYPT

The taxes in this country are likewise set forth under the title of *Finance.*

UNITED STATES

The principal taxes have been as follows :—

Year	Amount, £			Shillings per Inhabitant		
	Customs	Internal	Total	Customs	Internal	Total
1790	900,000	...	900,000	4.5	...	4.5
1800	1,870,000	170,000	2,040,000	7.0	0.7	7.7
1810	1,780,000	2,000	1,782,000	5.0	...	5.0
1820	3,120,000	20,000	3,140,000	6.6	...	6.6
1830	4,590,000	3,000	4,593,000	7.0	...	7.0
1840	2,800,000	...	2,800,000	3.3	...	3.3
1850	8,300,000	...	8,300,000	7.2	...	7.2
1860	11,050,000	...	11,050,000	7.1	...	7.1
1870	34,500,000	32,500,000	67,000,000	17.8	16.8	34.6
1880	38,800,000	25,800,000	64,600,000	15.6	10.3	25.9
1889	46,600,000	27,200,000	73,800,000	15.0	8.7	23.7

Internal revenue was made up thus :—

	1865	1875	1889
	£	£	£
Spirits	2,600,000	9,600,000	15,400,000
Tobacco . . .	1,600,000	6,800,000	6,600,000
Beer	500,000	1,600,000	5,000,000
Sundries . . .	23,500,000	2,400,000	200,000
Total . .	28,200,000	20,400,000	27,200,000

The principal States producing internal revenue are :—

State	Amount, £	State	Amount, £
New York . .	3,200,000	Ohio	2,400,000
Illinois	6,400,000	Pennsylvania . .	1,800,000
Kentucky . . .	3,500,000	Missouri . . .	1,600,000

The above six States produce 70 per cent. of the total.

The items which composed customs revenue in the United States were as follows :—

	Value, £		Duty, £		Percentage	
	1880	1889	1880	1889	1880	1889
Sugar	16,100,000	17,400,000	8,800,000	11,700,000	55	67
Woollens . . .	6,700,000	10,900,000	4,600,000	7,400,000	68	68
Silks	6,500,000	7,300,000	3,900,000	3,700,000	60	50
Cottons . . .	5,300,000	5,600,000	2,100,000	2,200,000	40	40
Linens, &c. . .	4,900,000	5,400,000	1,700,000	1,900,000	35	35
Iron	12,900,000	9,000,000	4,800,000	3,600,000	37	40
Tobacco . . .	1,300,000	2,800,000	1,000,000	2,300,000	75	80
Liquor . . .	1,700,000	2,300,000	1,200,000	1,600,000	72	70
Leather . . .	2,400,000	2,300,000	700,000	700,000	30	30
Glass	1,100,000	1,600,000	600,000	900,000	55	55
China . . .	1,200,000	1,300,000	500,000	700,000	42	52
Fruit . . .	2,500,000	2,700,000	700,000	800,000	28	30
Drugs . . .	2,800,000	2,700,000	800,000	1,000,000	28	36
Sundries .	22,000,000	29,500,000	6,700,000	8,100,000	30	27
Total .	87,400,000	100,800,000	38,100,000	46,600,000	44	46

The aggregate of national and local taxation was approximately as follows :—

	Amount, £		Shillings per Inhabitant	
	1860	1889	1860	1889
National . . .	11,050,000	73,800,000	7.0	23.7
Local	19,600,000	52,200,000	12.6	16.7
Total . .	30,650,000	126,000,000	19.6	40.4

State taxes are set forth at length under the title of *Local Taxation*.

CANADA

The principal taxes have been as follows :—

Year	Amount, £			Shillings per Inhabitant
	Customs	Excise	Total	
1868	1,700,000	600,000	2,300,000	14
1872	2,600,000	900,000	3,500,000	20
1876	2,600,000	1,200,000	3,800,000	20
1880	2,900,000	800,000	3,700,000	18
1884	4,100,000	1,100,000	5,200,000	23
1887	4,500,000	1,300,000	5,800,000	24

AUSTRALIA

The taxation in 1888 of the several colonies was :—

	Customs, £	Internal, £	Total, £	£ per Inhab.
N. S. Wales .	2,140,000	540,000	2.680,000	2.5
Victoria . .	2,350,000	720,000	3,070,000	2.9
Queensland .	1,350,000	230,000	1,580,000	4.2
S. Australia .	530,000	210,000	740,000	2.4
W. Australia .	180,000	...	180,000	4.3
Tasmania . .	300,000	110,000	410,000	2.8
New Zealand .	1,390,000	640,000	2,030,000	3.4
Total .	8,240,000	2,450,000	10,690,000	3.0

INDIA

The principal taxes show as follows :—

	1865	1875	1890	Pence per Inhabitant		
				1865	1875	1890
Land-tax	20,400,000	20,500,000	19,500,000	25	25	23
Opium .	8,500,000	9,200,000	6,900,000	10	11	8
Salt . .	5,300,000	6,000,000	6,700,000	6	7	8
Customs .	2,300,000	2,600,000	1,200,000	2	2	1
Excise .	2,200,000	2,400,000	3,900,000	2	2	3
Stamps .	2,000,000	2,500,000	3,300,000	2	2	3
Sundries .	4,500,000	4,000,000	6,000,000	5	4	7
Total .	45,200,000	47,200,000	47,500,000	52	53	53

In 1865 and 1875 the rupee is taken at 24d., in 1890 at 20d.

TEA

The consumption at present averages as follows :—

	Lbs.	Oz. per Inhab.
United Kingdom .	184,500,000	80
United States . .	80,000,000	20
Russia . . .	37,000,000	7
Australia . . .	20,000,000	88
Canada . . .	22,000,000	70
Various . . .	106,500,000	...
Total . .	450,000,000	...

Tea is mostly grown in China, the plants being 4 feet apart, that is, 2700 to the acre. Plants seven years old will give 700 lbs. tea to the acre, or 4 oz. per plant. The average exportation from tea-growing countries is shown thus :—

	Millions of Lbs.		
	1880–83	1884–85	1887–88
China	284	290	290
India	53	66	90
Japan	37	35	40
Java	5	6	7
Paraguay . .	10	10	10
Ceylon . . .	1	8	19
Total . .	390	415	456

The consumption in the United States, compared with population, has not varied in fifteen years, being about 20 oz. per inhabitant. In the United Kingdom it steadily increases, and Indian tea, which is said to contain much more body than Chinese (as 4 lbs. to 5 lbs.), is rapidly supplanting that of China.

In 1888 the consumption in the United Kingdom was as follows :—

	Lbs.
Chinese	78,500,000
Indian and Ceylon . . .	105,800,000
Total . . .	184,300,000

In 1878 India supplied only 17 per cent. of the tea consumed in Great Britain.

The following table shows the consumption since 1711 :—

Year	Lbs.	Oz. per Inhabitant	Duty per Lb., Pence	Price per Lb., Pence
1711 . .	142,000	$\frac{1}{2}$	66	216
1725 . .	370,000	1	66	200
1740 . .	1,003,000	3	66	200
1750 . .	2,568,000	6	40	150
1760 . .	4,072,000	9	36	120
1770 . .	7,149,000	14	30	100
1780 . .	5,152,000	9	40	110
1790 . .	14,693,000	24	7	65
1800 . .	20,359,000	21	18	70
1810 . .	19,093,000	17	46	80
1820 . .	22,452,000	18	38	70
1830 . .	30,047,000	20	30	60
1840 . .	32,253,000	20	25	50
1850 . .	49,572,000	29	26	48
1860 . .	78,340,000	43	18	40
1870 . .	118,200,000	61	6	30
1881 . .	167,700,000	73	6	25
1888 . .	184,300,000	80	6	20

In 1890 the duty was reduced to 4d., and as the price now averages 18d., it is probable the consumption will reach this year (1891) about 200 million pounds, or 5½ lbs. per inhabitant.

TELEPHONES

In 1876 there were 200 working in Europe, and 380 in the United States. In 1883 there were nearly 79,000 working in 303 towns, viz. :—

	Towns	Telephones
Europe	161	30,100
America	126	47,200
Asia	7	420
Africa	4	240
Australia . . .	5	900
Total . .	303	78,800

The numbers in use in various countries in 1885 and 1888 were :—

	1885	1888		1885	1888
U. Kingdom .	12,000	20,400	Italy . . .	7,000	9,200
France . . .	10,000	10,000	Switzerland .	...	7,600
Germany . .	17,000	33,000	Spain . . .	1,000	2,200
Russia . . .	3,000	7,600	Sweden . .	10,000	...
Denmark . .	...	1,900	Holland . .	4,000	...
Austria . . .	2,500	4,000	Belgium . .	4,000	5,200

In 1888 the numbers in various cities were :—

Berlin . . .	8,600	St. Petersburg . . 1,500
New York . .	6,900	Milan . . . 1,200
Paris . . .	5,300	Manchester . . 1,200
Stockholm . .	3,800	Vienna . . . 1,200
Buenos Ayres .	2,800	Liverpool . . . 1,100
Montevideo . .	2,200	Glasgow . . . 1,100
Rome . . .	2,100	Zurich . . . 1,100
Hamburg . .	1,900	Naples . . . 1,000
Geneva . . .	1,500	Moscow . . . 800

The total number of telephones in use in the United States in 1885 was 325,000, and in Canada 18,000. The number of messages transmitted daily averages 100,000 in Berlin, 90,000 in London, 26,000 in Belgium, 16,000 in Austria. The United Kingdom in 1887 had 30,000 miles of telephone wire in use, Belgium 7000, Austria 7000, Germany 51,000, and the whole of Europe 330,000 miles. The longest lines in Europe are Berlin-Hanover 225 miles, Vienna-Budapesth 150 miles.

THEATRES

The following table (1882) shows the number in each country, and how many have been burnt from 1880 to 1882 :—

	Number	Burnt	Period	Burnt
Great Britain .	152	68	1800-10	16
France	337	63	1811-20	14
Italy	348	45	1821-30	31
Spain	160	17	1831-40	33
Germany . . .	191	49	1841-50	44
Russia	44	25	1851-60	74
Austria	152	26	1861-70	98
United States .	550	176	1871-82	159
Total . .	1,934	469	83 years	469

In 1882 the gross receipts of London theatres were £1,320,000, being an average of 7s. per inhabitant. The expenditure was :—

	£
Pay to actors	725,000
Pay to authors	79,000
Rent	119,000
Sundries and profits	397,000
	1,320,000

The gross receipts of Paris theatres were as follows :—

Year	£	In 1889	£
1850 . . .	330,000	Opera . . .	160,000
1860 . . .	580,000	Hippodrome . .	113,000
1867 . . .	840,000	Français . .	94,000
1878 . . .	1,200,000	Comique . .	77,000
1889 . . .	1,280,000	Various . .	836,000

The sum paid to authors for plays in 1888 was £75,000 sterling. The number of actors employed was about 3200.

The loss of life by fires at theatres was as follows :—

Year	Theatre	Victims	Year	Theatre	Victims
1772	Amsterdam .	48	1847	Carlsruhe . .	63
1778	Saragossa .	137	1857	Leghorn . .	102
1794	Capo d'Istria .	945	1867	Philadelphia .	13
1811	Richmond . .	78	1876	Brooklyn . .	283
1836	St. Petersburg	770	1880	Nice . . .	790
1845	Canton . . .	1,660	1881	Vienna . . .	1,460
1846	Quebec . . .	355	1883	Smolensk . .	380

THERMAL SPRINGS

The nature of some of the principal is thus shown :—

	Carbonates		Sulphates		Chlorides of Sodium	All Fixed
	Soda	Lime	Soda	Lime		
Aix-les-Bains .	...	148	096	016	008	430
Aix-la-Chapelle .	650	159	283	...	2.639	4.102
Baden-Baden .	...	166	...	300	1.600	2.314
Bath	...	126	274	1.143	180	2.060
Bigorre . . .	...	142	400	1.900	040	2.900
Bilin	3.009	402	827	...	382	4.960
Bourboule . .	2.272	196	279	...	3.346	6.519
Bussang . . .	789	054	110	...	078	1.123
Buxton . . .	...	111	...	052	034	294
Castellamare . .	825	391	625	...	5.851	9.794
Cauterets . . .	...	...	024	...	072	260
Cheltenham . .	125	...	1.678	146	3.081	5.520
Clifton . . .	...	252	043	141	084	628
Dax	...	092	043	359	301	1.022
Eaux Chaudes .	035	...	042	105	115	309
Ems	1.979	216	034	...	983	3.519
Friedrichshal .	...	015	5.434	1.463	8.381	24.933
Gastein . . .	...	020	204	...	047	339
Harrogate . .	...	342	204	008	11.354	13.664
Huny. Janos . .	796	933	15.915	...	1.305	34.855
Lisbon . . .	...	571	...	485	15.428	20.507
Leamington . .	...	...	3.993	...	3.424	11.513
Malvern . . .	...	...	027	...	...	076
Neuenahr . . .	1.055	305	250	...	150	2.313
Ofen	029	122	21.196	7.066	2.753	56.816
Pfeffers . . .	...	142	009	007	052	291
Royat	349	1.000	183	...	1.728	5.586
St. Galmier . .	238	...	079	180	216	1.886
St. Moritz . .	191	726	272	...	039	1.446
Schwalbach . .	188	439	005	...	007	1.189
Seltzer	1.021	550	150	...	2.040	4 092
Spa	127	173	020	...	026	658
Tarasp . . .	3.545	1.619	2.155	...	3.828	12.251

The temperature, in Fahrenheit, of the principal springs, is shown thus :—

Bilin . . .	66	Thermopylæ	113	Ischia . . .	140
St. Didier .	70	Vichy. . .	113	Ofen . . .	144
Mallow . .	72	Bath . . .	115	Arles . . .	145
Bristol . .	74	Gastein . .	117	Baden-Baden	147
Yverdun . .	76	Bigorre . .	119	Plombières .	147
Buxton . .	82	Töplitz . .	121	Viseu . . .	153
Kreuznach .	86	Lucca . .	124	Wisbaden .	158
Patras . .	97	Cauterets .	130	Balkan . .	163
Wildbad .	98	Ems . . .	131	Acqui . . .	167
Pfeffers . .	101	Aachen . .	135	Carlsbad . .	167
Alicante . .	104	Guimaraens	138	Chaudes-Aigues	174
Pisa . . .	106	Luchon . .	140	Baths of Nero	182

In 1882 an official report of the result of some French springs was as follows :—

	Barèges	Amelie	Vichy	Bour-bonne	General Average
Cured . .	12	9	22	16	15
Improved .	52	45	61	62	55
No effect .	33	36	14	17	25
Worse . .	3	10	3	5	5
Total .	100	100	100	100	100

TIDES

The height of ordinary tides at various places is :—

	Feet		Feet		Feet
Bantry . .	11	Granville . .	21	Penzance .	16
Belfast . .	8	Greenock . .	9	Portsmouth .	10
Bergen . .	4	Harwich . .	9	Queenstown .	9
Bordeaux . .	8	Havre . .	13	Ramsgate .	15
Boulogne .	13	Holyhead . .	12	St. Nazare .	9
Brest . . .	13	Hull . . .	15	St. Malo . .	19
Calais . . .	10	Isle of Man .	19	Scarborough .	12
Cherbourg .	9	Inverness . .	12	Shields . .	9
Dieppe . .	15	Jersey . . .	17	Sligo . . .	8
Dover . . .	14	Kingstown .	9	Sunderland .	10
Drontheim .	8	Kinsale . .	15	Thurso . .	9
Dundee . .	15	Leith . . .	12	Ushant . .	20
Dunkirk . .	9	Limerick . .	17	Waterford .	9
Fundy Bay .	66	Liverpool . .	19	Weston-S.-M.	27
Galway . .	10	London . .	16	Westport .	13
Glasgow . .	9	Pembroke .	15	Whitehaven .	24

Toulon has a tide of 4 inches, which is about the average of the Mediterranean.

TIME

At London, Noon

Forenoon

Boston . .	7.15	Havanna .	6.30	Quebec . .	7.12
Buenos Ayres	8.06	Lima . .	6.52	Quito . .	6.45
Caracas . .	7.32	Lisbon . .	11.24	Rio Janeiro	9.07
Chicago . .	6.26	Madeira .	10.48	San Francisco	3.52
Demerara .	8.06	Madrid . .	11.46	Sandwich }	
Dublin . .	11.35	Mexico . .	5.24	Islands }	1.28
Edinburgh .	11.47	Montreal .	7.06	Sierra Leone	11.07
Falkland I.	8.04	New Orleans	6.00	Teneriffe .	10.52
Gibraltar .	11.38	New York .	7.05	Trinidad .	7.55
Glasgow .	11.44	Panama .	6.42	Valparaiso .	7.13
Halifax . .	7.44	Philadelphia	6.50	Washington	6.52

Afternoon *

Adelaide .	9.14	Copenhagen	12.50	Paris . .	12.10
Alexandria .	2.00	Dresden .	12.54	Pekin . .	7.46
Algiers . .	12.13	Florence .	12.45	Prague . .	12.58
Amsterdam	12.20	Geneva . .	12.25	Rome . .	12.50
Athens . .	1.35	Jerusalem .	2.21	St. Peters- }	
Berlin . .	12.54	Lyons . .	12.20	burg . }	2.04
Bombay .	4.51	Madras . .	5.21	Singapore .	6.55
Brussels .	12.17	Malta . .	12.58	Stockholm .	1.12
Buda-Pesth	1.16	Manilla . .	8.03	Suez . . .	2.10
Cairo . .	2.07	Mauritius .	3.48	Sydney . .	10.05
Calcutta .	5.54	Melbourne .	9.40	Tunis . .	12.40
Capetown .	1.12	Moscow .	2.30	Venice . .	12.50
Constanti- }	1.56	Munich . .	12.46	Vienna . .	1.06
nople. }		Naples . .	12.57	Yokohama .	9.20

TIN

The average yearly consumption of tin metal in Great Britain was :—

Years	Tons, Tin Metal			Value per Ton, £
	British	Net Import	Total	
1800–20 average	2,510	...	2,510	76
1821–40 ,,	4,180	...	4,180	70
1841–60 ,,	5,910	450	6,360	107
1861 . . .	7,450	...	7,450	122
1871 . .	10,900	810	11,710	136
1880 . . .	9,200	6,550	15,750	91
1888 . . .	9,200	22,000	31,200	117

* Dresden, for example, 12.54, signifies 54 minutes past noon.

The production in 1882 was as follows :—

	Tons		Value of Ore, £	Metal Ratio per Cent.
	Tin Ore	Tin Metal		
Great Britain .	13,700	9,200	670,000	66
Australia . . .	24,000	17,500	1,250,000	74
Java	15,000	9,000	700,000	60
Total . .	52,700	35,700	2,620,000	69

TOBACCO

In 1884 the production was as follows :—

	Acres	Tons
United States .	610,000	210,000
West Indies . .	50,000	22,000
Brazil . . .	105,000	38,000
Japan . . .	100,000	40,000
Java . . .	110,000	46,000
India . . .	580,000	170,000
Russia . . .	110,000	75,000
Austria . . .	140,000	65,000
Turkey . . .	90,000	35,000
Germany . .	52,000	32,000
France . . .	26,000	15,000
Manilla, &c. . .	54,000	20,000
Total .	2,029,000	768,000

The following table shows the consumption in 1883 approximately :—

	Tons	Oz. per Inhabitant
United Kingdom . .	23,000	23
France	32,000	29
Germany . . .	61,000	48
Russia . . .	54,000	24
Austria . . .	48,000	42
Italy	18,000	22
Spain and Portugal .	18,000	32
Belgium and Holland .	23,000	84
Scandinavia . .	10,000	40
Turkey . . .	22,000	70
Switzerland . .	7,000	82
Europe	383,000	44
United States . .	85,000	59
India . . .	165,000	30
Japan . . .	38,000	39
Brazil . . .	20,000	70
Colonies, &c. . .	77,000	...
The World . . .	768,000	...

The consumption per inhabitant has increased much more rapidly in France than in the United Kingdom, viz. :—

	Million Lbs.		Oz. per Inhabitant		Duty, Pence per Lb.	
	United Kingdom	France	United Kingdom	France	United Kingdom	France
1801	17	...	10	...	20	...
1811	21	20	18	11	27	6
1821	16	22	12	12	48	6
1831	20	24	13	12	36	12
1841	22	36	13	17	36	12
1851	31	44	18	20	36	24
1861	35	56	19	24	36	30
1872	44	61	22	26	36	40
1881	51	70	23	29	42	40
1888	57	80	23	33	42	40

De Foville estimates the consumption as follows :—

	Oz. per Inhabitant		Oz. per Inhabitant
France . . .	28	Austria . . .	42
Belgium . . .	87	Norway . . .	35
Holland . . .	70	Denmark . . .	35
Germany . . .	53	Russia . . .	28

Professor Bochk estimates the annual consumption per head at two epochs as follows :—

	Oz. per Inhab.			Oz. per Inhab.	
	1870–74	1880–84		1870–74	1880–84
U. Kingdom	23	23	Norway .	40	37
France . .	29	33	Holland .	85	110
Germany .	67	48	Belgium .	45	51
Sweden . .	32	31	Italy . . .	29	21

Newmann Spallart's estimate (1885) is as follows :—

	Oz. per Inhabitant			Oz. per Inhabitant
France . . .	33	Sweden . .	.	41
Germany . .	69	Denmark . .	.	56
Russia . . .	32	Norway . .	.	40
Austria . . .	70	Holland . .	.	98
Italy . . .	24	Belgium . .	.	88
Switzerland .	80	United States .	.	106

The market value of various kinds of tobacco in 1884 was as follows :—

	£ per Ton	Value of Crop, £
Cuba	400	4,800,000
Manilla . . .	90	1,800,000
Algeria . . .	45	300,000
United States . .	50	10,000,000
Brazil	70	2,800,000
Java	63	1,200,000
Turkey . . .	63	2,200,000

The percentage of nicotine was as follows :—

Syria	0.0	California . . .	4.0
Havana . . .	2.0	Kentucky . . .	6.1
Maryland . . .	2.3	Virginia . . .	6.9
Alsace . . .	3.0	France . . .	7.5

Snuff contains 2½ per cent., Brazilian tobacco 10 per cent. In most countries there are heavy taxes on tobacco, for which see *Taxes*.

FRANCE

The tobacco monopoly dates from 1816 ; the proceeds in 1889 amounted to £14,900,000, and it is believed that the Government makes a profit of 12 millions sterling per annum. The largest factory is that of Lille, which turns out 600,000 tons yearly. Not quite half the tobacco consumed is grown in France, the crop averaging 16,000 tons, imported tobacco 20,000 tons. About 20,000 persons are employed by Government in the manufacture or sale. Cigars and cigarettes form 13 per cent., tobacco for pipes 87 per cent. ; the sale of cigars has been as follows :—

Year				Tons	Ratio of Total
1839	.	.	.	226	1.5
1859	.	.	.	2,210	9.0
1883	.	.	.	4,800	13.0

Most of the imported tobacco comes from the United States. The tobacco grown in France covers 25,000 acres, the average number of plants being 10,000 to the acre.

GERMANY

The cultivation has been as follows :—

Year	Acres	Crop, Tons	Value, £	£ per Ton
1871 . . .	56,000	35,900	890,000	25.5
1877 . . .	54,000	31,700	580,000	20.5
1887 . . .	54,000	38,600	820,000	21.5

The production is short of requirements, imports averaging 25,000 tons yearly.

RUSSIA

The production according to N. Spallart has been :—

Year	Acres	Tons	Cwts. per Acre
1875 . . .	140,000	49,000	7.0
1885 . . .	130,000	51,000	7.8

Spallart estimates the consumption at 80,000 tons, which implies an importation of about 30,000 tons, but the trade returns show less than one-tenth of that quantity.

AUSTRIA

The production has been approximately as follows :—

Year	Tons		
	Austria	Hungary	Total
1835 . . .	7,000	15,000	22,000
1877 . . .	6,000	50,000	56,000
1885 . . .	4,000	60,000	64,000

Besides the above crop, Austria consumes yearly about 15,000 tons imported.

ITALY

The consumption according to Spallart was as follows :—

Year	Tons		
	Italian	Imported	Total
1879 . . .	4,300	12,100	16,400
1885 . . .	5,200	14,600	19,800

CUBA

The quantity of tobacco raised is comparatively small, exports seldom exceeding 8000 tons, including 500 tons of cigars. The quality, however, is so fine that the unmanufactured tobacco ranges from £200 to £800 a ton, and cigars from £1000 to £5000 a ton. Newmann Spallart gives the exportation as follows :—

Year	Tobacco, Tons	Cigars, Tons	Total
1875 . . .	7,100	700	7,800
1884 . . .	6,200	500	6,700

In 1888 Cuba exported 220 million cigars and 300,000 bales of tobacco. Porto Rico exports 2500 tons of tobacco.

MANILLA

The Compañia General, with a capital of three millions sterling, owns large estates, employs 10,000 hands, and turns out yearly 80 million cigars, 400 million cigarettes, and 2500 tons of cut tobacco. The island of Luzon has 60,000 acres under tobacco. In 1889 there were 112 million cigars exported, of which 26 millions went to Spain, 18 millions to England.

UNITED STATES

The United States exported the following quantities :—

	Tons	Value, £	£ per Ton
1800 . . .	40,000	1,100,000	27.5
1820 . . .	41,000	1,500,000	37.0
1840 . . .	62,000	1,900,000	32.0
1860 . . .	86,000	2,500,000	28.8
1870 . . .	84,000	4,300,000	51.5
1880 . . .	97,000	3,400,000	35.0
1889 . . .	100,000	4,700,000	47.0

Full details of the tobacco crop of the United States are given under the title of *Agriculture*.

TOYS

France exported the following in 1889 :—

To	Tons	Value, £
Great Britain . . .	1,325	500,000
Other countries . . .	6,335	2,300,000
Total . .	7,660	2,800,000

Berlin papers in 1890 give statistics of Christmas trees, viz. :—

Berlin takes	400,000
Dresden takes	200,000

Those of 3 feet sell for a shilling, 10 feet 2s., and 20 feet 10s. to 15s., including the flower-pot.

TRADE UNIONS

According to Mr. George Howell, there are about 8000 trade unions in Great Britain, counting 1,200,000 members, with an aggregate revenue of £2,000,000. He publishes the following balance-sheet for 30 years down to 1881 :—

Payments

Sick operatives . . .	.	£1,004,000
Out of work operatives	. .	1,979,000
On strike operatives .	. .	274,000
Pensions . . .	. .	330,000
Funerals . . .	. .	319,000
Accidents . . .	. .	120,000
Loans . . .	. .	67,000
Total . .	.	£4,093,000

Forty-four principal unions showed as follows :—

	1871	1883
Members	224,000	253,000
Income, £ . . .	240,000	293,000
Reserve, £ . . .	200,000	431,000

The following were the most important trade unions in the United Kingdom in 1887 :—

	Number	Funds, £		Number	Funds, £
Engineers	51,900	125,100	Ironfounders . . .	11,700	10,400
Carpenters	25,500	40,000	Printers . . .	8,100	20,200
Boiler-makers . . .	25,100	10,200	Bricklayers . . .	7,200	26,100
Cotton-spinners . . .	15,400	51,700	Rail-porters . . .	10,800	62,200

Mr. Philips Bevan in 1880 compiled the following table of strikes in the United Kingdom in ten preceding years :—

Trades		*Districts*		*Towns*	
Builders .	598	Scotland . . .	473	London . .	56
Colliers .	339	York	338	Manchester .	44
Textile .	277	Lancashire . .	149	Leeds. . .	73
Carpenters	187	Northumberland	138	Sheffield . .	66
Masons .	151	South-West . .	135	Glasgow . .	85
Various .	800	Various . . .	1,119	Edinburgh .	65
				Newcastle .	63
Total .	2,352	Total . .	2,352		

ITALY

In five years ending 1876 there were 206 strikes :—

Masters gained	124
Operatives gained	82
Total . . .	206

There were 137 for higher wages, and 69 for other causes.

UNITED STATES

Commissioner Wadlin, chief of the Bureau of Statistics for Massachusetts, published in 1888 a report on strikes from 1825 to 1886 ; with a vast amount of detail on all the strikes by operatives and lockouts by employers during the six years ending December 1886. These latter may be summed up thus :—

	Strikes			Hands after Strike	Lockouts, Hands Involved
	Hands Employed	Hands on Strike			
Massachusetts	114,000	81,100		109,300	14,300
Illinois . . .	214,000	191,900		213,300	21,400
New York. .	376,600	329,900		374,100	71,200
Pennsylvania	361,600	283,400		358,100	16,700
Ohio . . .	132,700	109,700		130,200	7,500
Various . .	461,400	327,200		450,000	29,700
Total .	1,660,300	1,323,200		1,635,000	160,800

The trades in which the strikes in these States occurred were (1881–86) as follows :—

Trade	Hands on Strike						
	Massachusetts	Illinois	New York	Pennsylvania	Ohio	Various	Total
Mining	...	30,200	...	118,400	50,700	59,600	258,900
Metals	4,200	22,000	11,400	90,400	27,100	38,300	193,400
Transport . . .	2,500	17,900	51,200	2,700	3,500	50,100	127,900
Building . . .	7,600	9,700	57,100	4,200	1,900	19,400	99,900
Tobacco . . .	1,000	1,800	74,100	2,500	2,600	15,400	97,400
Clothing . . .	2,500	3,900	47,200	10,800	200	9,800	74,400
Cottons . . .	17,100	...	6,300	1,900	500	17,800	43,600
Shoes . . .	22,900	900	3,500	1,200	4,500	7,800	40,800
Food . . .	...	33,000	4,700	100	100	2,100	40,000
Timber . . .	...	12,000	...	...	...	22,900	34,900
Furniture . . .	900	9,300	5,900	1,100	2,500	5,400	25,100
Machinery . .	300	4,300	4,500	2,200	2,700	8,300	22,300
Brick . . .	...	5,000	6,500	900	600	7,300	20,300
Various . . .	22,100	41,900	57,500	47,000	12,800	63,000	244,300
Total . .	81,100	191,900	329,900	283,400	109,700	327,200	1,323,200

The trades affected by lockouts by masters were (1881–86) as follows :—

	Tobacco	Clothing	Shoes	Food	Metals	Various	Total
				Hands Locked Out			
Massachusetts . . .	...	...	11,100	700	...	2,500	14,300
Illinois	500	600	...	16,000	1,700	2,600	21,400
New York . . .	23,900	23,100	500	...	4,500	19,200	71,200
Pennsylvania . . .	800	1,400	4,000	...	5,900	4,600	16,700
Ohio	1,700	...	2,000	...	1,000	2,800	7,500
Various	3,600	1,900	300	...	3,500	20,400	29,700
Total . .	30,500	27,000	17,900	16,700	16,600	52,100	160,800

The following is a general summary of all strikes in the State of Massachusetts between 1825 and 1886 :—

Trade	Number	Locality	Number
Textiles . . .	59	Boston . . .	35
Shoemakers . .	34	Lynn . . .	14
Builders . . .	10	Lowell . . .	10
Various . . .	56	Various . . .	90
Total .	159	Total .	159

The causes and results were as follows :—

For		Result	
Better wages . .	118	Successful . . .	24
Shorter hours . .	24	Unsuccessful . .	109
Various causes . .	17	Compromised . .	26
Total . .	159		159

The loss caused in Massachusetts by strikes to employers and operatives in the several trades during the said six years (1881–86) was as follows :—

Trade	To Employers	To Operatives	Total
	£	£	£
Shoes	100,000	330,000	430,000
Woollen-mills .	105,000	170,000	275,000
Cotton-mills . .	15,000	130,000	145,000
Building . .	90,000	50,000	140,000
Indiarubber . .	30,000	30,000	60,000
Sundries . . .	70,000	160,000	230,000
Total . .	410,000	870,000	1,280,000

If the losses in Massachusetts be on a par with those of the other States according to the number of hands on strike and of those involved in lockouts, the total for the Union would be as follows :—

	Aggregate Loss in Strikes of Six Years			Loss in Lockouts
	To Employers	To Operatives	Total	
	£	£	£	£
Massachusetts	410,000	870,000	1,280,000	315,000
Illinois . . .	950,000	2,060,000	3,010,000	470,000
New York . .	1,650,000	3,560,000	5,210,000	1,580,000
Pennsylvania .	1,400,000	3,070,000	4,470,000	360,000
Ohio . . .	540,000	1,160,000	1,700,000	170,000
Other States .	1,630,000	3,530,000	5,160,000	650,000
Total .	6,580,000	14,250,000	20,830,000	3,545,000

This shows a total supposed loss of 24 millions sterling, or 4 millions a year, in disputes between employers and operatives.

The loss caused by lockouts in the same six years was :—

Trade	To Employers	To Operatives	Total
	£	£	£
Shoes	27,000	110,000	137,000
Building . . .	63,000	5,000	68,000
Leather	12,000	75,000	87,000
Sundries . . .	13,000	10,000	23,000
Total . .	115,000	200,000	315,000

TRAMWAYS

Statistics are wanting as regards most countries.

UNITED KINGDOM

The mileage and cost have been as follows :—

	Miles		Cost, £		£ per Mile	
	1880	1889	1880	1889	1880	1889
England . .	269	758	4,200,000	11,200,000	15,550	14,700
Scotland . .	50	81	800,000	1,300,000	16,900	15,500
Ireland . .	48	110	700,000	1,200,000	13,500	11,000
U. Kingdom	367	949	5,700,000	13,700,000	15,400	14,400

Traffic returns in 1889 showed as follows :—

	Million Passengers	Passengers per Mile	Receipts, £	Net, £	Ratio to Capital
England .	380	501,000	2,370,000	543,000	4.9
Scotland .	71	871,000	400,000	119,000	9.3
Ireland . .	27	249,000	211,000	51,000	4.2
U. Kingdom	478	503,000	2,981,000	713,000	5.2

According to Scott Russell, the cost of working tramways by compressed air (as at Nantes) is 5d. per mile, by steam 39d., and by horse 56d. per mile. He also says that a tramcar drawn by two horses on the level will require the following number, according to gradients :—

Gradient								Horses
1 in 75	.	.	.	.	.	.	.	4
1 in 37	.	.	.	.	.	.	.	6
1 in 25	.	.	.	.	.	.	.	8

The above returns show that the average fare in pence is 1.5 in England, 1.3 in Scotland, and 1.8 in Ireland.

GERMANY

Berlin has 80 miles of tramway, which carried 52 million passengers in 1888.

FRANCE

In 1889 there were 455 miles of tramway in use. The cost of construction was £5,650,000, or £12,000 per mile, and the traffic in 1888 showed :—

	£
Earnings	1,430,000
Expenses	1,160,000
Net product .	270,000

This was equal to 4¾ per cent. on the capital cost. The Omnibus Co. of Paris has 13,700 horses, of which 10,200 are used for busses and 3500 for tramcars, being 15 for each bus and 14 for each tramcar.

UNITED STATES

The United States and Canada showed tramways thus :—

	1882	1890
Lines.	415	957
Miles.	3,020	8,820

The lines running in 1882 employed 35,000 men and 100,000 horses, carrying 101 million passengers monthly. The horses drew 18,000 cars, and consumed yearly 150,000 tons hay and 300,000 tons grain: they last four years. The value of tramways in 1890 was :—

	£
Horse trams	12,200,000
Steam and cable	11,600,000
Electric	10,200,000
Total . . .	34,000,000

BELGIUM

In 1888 there were 42 miles of tramway; traffic of year, 14,800,000 passengers; receipts, £199,000; net earnings, £61,000; cost of construction, £1,030,000.

HOLLAND

In 1882 the returns were :—

	Miles	Passengers	Receipts, £
Amsterdam . .	38	8,400,000	85,000
Rotterdam . .	12	4,100,000	31,000
Hague . . .	20	2,350,000	27,000
Various . .	190	4,050,000	57,000
Total .	260	18,900,000	210,000

Returns for later years show :—

	1884	1888
Miles . . .	380	555
Horses . . .	...	1,023
Locomotives . .	152	214
Passengers . .	20,100,000	30,900,000
Receipts, £ . .	267,000	282,000

SWITZERLAND

In 1888 there were 22 miles of tramway, worked by 5 locomotives and 260 horses, carrying yearly 6,300,000 passengers; receipts, £37,000; net receipts, £8200; cost of construction, £169,000, or £7600 per mile.

TRANSPORT

The following table shows approximately the weight of sea-borne merchandise yearly :—

	Tons Yearly				Ratio in 1888
	1861–70	1871–80	1880	1888	
Grain	4,375,000	10,072,000	10,530,000	13,600,000	9.3
Cotton	486,000	995,000	1,170,000	1,450,000	1.0
Wool	121,000	252,000	301,000	440,000	0.3
Meat	125,000	380,000	660,000	730,000	0.5
Coal	14,200,000	22,100,000	30,400,000	38,200,000	26.2
Iron	1,920,000	3,490,000	4,588,000	4,700,000	3.2
Sugar	1,260,000	2,086,000	2,350,000	2,600,000	1.8
Clothing	1,410,000	2,520,000	2,815,000	3,100,000	2.1
Coffee	346,000	452,000	527,000	630,000	0.4
Timber	16,170,000	21,215,000	23,550,000	25,400,000	17.3
Sundries . . .	13,807,000	26,778,000	35,875,000	55,550,000	37.9
Total * . . .	54,220,000	90,340,000	112,766,000	146,400,000	100.0

The weight and value of sea-borne merchandise at various dates were approximately as follows :—

Year	Tons, Millions	Value, Million £	Value per Ton
1830	10	193	£19
1840	15	287	19
1850	25	438	17
1860	41	701	17
1870	71	995	14
1880	117	1,360	12
1888	146	1,490	10

The weight borne on canals and rivers was approximately thus :—

	Tons			Tons
U. Kingdom .	34,300,000		Canada . .	3,400,000
France .	24,500,000		United States .	51,000,000
Germany .	8,000,000			
Russia .	8,600,000		Total .	137,500,000
Belgium .	7,700,000			

The foregoing is an estimate as regards the United States, based on the fact that in 1880 the steamboats alone carried 25,500,000 tons merchandise, without counting flat-boats drawn by tugs.

The weight of merchandise carried by railways was approximately as follows :—

	Millions of Tons			
	1860	1870	1880	1888
United Kingdom . .	82	170	256	282
Continent	68	231	413	483
United States . . .	70	150	361	590
Colonies, &c . . .	2	11	40	75
The World	222	562	1,070	1,430

* These totals are equal to 65 per cent. of the aggregate annual tonnage of the port-entries of the world at the various periods (see p. 522).

It appears, therefore, that the annual goods traffic of the world daily, counting 310 days to the year, is as follow, :—

		Tons
By rail .	. . . .	4,610,000
On sea .	. . . .	470,000
By canal	. . . .	440,000
Total	. . .	5,520,000

But as each sea-voyage may be assumed to last ten days, during which the merchandise is being carried, the real goods traffic of the world (allowing three days for canal traffic) averages daily as follows :—

		Tons
By rail .	. . . .	4,610,000
By sea .	. . . .	4,700,000
By canal	. . . .	1,320,000
Total	. . .	10,630,000

As regards passenger traffic, the following table shows approximately the principal sea-routes and their number yearly :—

Between	Passengers
Europe and United States . . .	900,000
England and France . . .	650,000
Mediterranean and South America .	450,000
France and Algeria . . .	240,000
Danube ports	1,650,000
Adriatic and Levant . . .	280,000

The traffic between England and the Continent has been as follows :—

Year	Passengers
1842	109,000
1848	124,000
1889	730,000

Dover and Calais boats carry 360,000 ; Newhaven and Dieppe, 190,000 ; Folkestone and Boulogne, 115,000 ; Dover and Ostend, 56,000.

As regards railway passengers, see *Railways*.

TRAVELLERS

In 1870 there were 398,000 in Russia, including 237,000 Germans and 123,000 Austrians.

In 1879 there were 947,000 persons who visited Switzerland, of whom 350,000 were Germans, 210,000 Americans, and 160,000 Russians. See *Passengers* and *Transport*.

TRUFFLES

Perigord produces 1500 tons per annum, worth £1000 per ton ; 90 per cent. are consumed in France.

TULIPS

One root of the "Viceroy" sold at Amsterdam for £2600, and when a law was passed against paying over £500 for a root, a "Semper Augustus" fetched £460, with a carriage and pair of horses. Holland has 600 acres under tulips, and exports the value of £110,000 per annum.

TUNNELS

Herodotus mentions a tunnel 8 × 8 feet, with a length of 1100 yards, to supply Samos with water ; remains discovered in 1882. The Schemnitz tunnel, completed in 1888, was begun in the 18th century, at a height of 3000 feet over sea-level : the original contract was for £7 a lineal yard, but the works were suspended from

1795 to 1825, and again from 1835 to 1855 ; the cost has been one million sterling. The Channel tunnel was first proposed by De Gramond in 1867, in the form of a metal telescope 30 × 24 feet, to cost 7 millions sterling, and be completed in seven years. Hawkshaw took up the project in 1869, Bateman and Revy being associated in the plans. A company was formed in 1874 ; estimated cost, 3 millions sterling ; length, 30 miles ; opening, 14 × 14 feet ; trains to go 40 miles an hour, each having 12 carriages with 400 passengers, and 20 waggons with 100 tons goods ; estimated yearly traffic, 6,000,000 passengers and 1,500,000 tons goods. Parliament opposed the project, and the works were suspended in 1883.

The most remarkable tunnels are the following :—

Date	Tunnel	Length, Yards	Cost per Yard, £	Maker	Years in Making	Aperture, Feet
1827	Harecastle .	2,926	...	Telford . .	3	14 × 16
1835	Kilsby . .	2,070	154	Stephenson	...	27 × 24
1843	Thames .	560	1,100	Brunel . .	11	38 × 22
1870	Mont Cenis	13,540	201	Grattoni .	13	10 × 8
1879	Baltimore .	10,800	...	...	...	...
1881	St. Gothard	16,390	152	Favre . .	8	9 × 8
1884	Aarlberg .	6,720	220	Favre .	20	...
1884	Hudson .	1,833	1,100	Richardson	4	18 × 18
1885	Mersey .	2,700	200	Favre . .	4	27 × 20
1885	Severn . .	...	...	Richardson	12	...
1886	Hoosac . .	7,900	...	...	16	24 × 9
1888	Schemnitz .	19,400	5 2	...	106	9 × 7

The following engines have been used for tunnels :—

Date	Inventor	Strokes per Minute	Date	Inventor	Strokes per Minute
1813	Trevethick	...	1873	Darlington	500
1853	Bartlett . .	...	1873	Ferroux .	...
1857	Sommeiller	400	1873	Ingersoll .	400
1863	Sachs . .	400	1875	Barrow . .	...
1868	Dubois . .	300	1875	Ullathorne	...
1868	François .	300	1876	Beaumont .	...
1869	Burleigh .	400	1876	Geach . .	500
1869	Ostercamp	220	1877	Jordan . .	...
1872	M'Kean .	500	1877	Schramm .	500

Brunton's borer has been found in late years to make 49 inches of tunnel per hour, with 7 feet diameter. The following table shows various methods :—

Tunnel	Feet Opening	Engine	Pressure, Lbs. Sq. Inch	Tons Excavated	Tons Daily
Thames . .	800	Brunel . .	...	45,000	12
Mont Cenis	81	Sommeiller	90	240,000	60
Airolo . .	70	M'Kean . .	90	...	...
Schemnitz .	60	Sachs . .	60	45,000	15
Comstock .	140	Burleigh .	70	...	155
Hudson . .	324	...	...	52,000	80
Ronchamps	52	Dubois . .	67	...	...
Belmore . .	27	Darlington	50	...	3
St. Gothard	72	Ferroux .	90	265,000	102

The Channel and Mersey tunnels employed Beaumont's compressed-air borer. The cost of excavation was £13 per ton of clay in the Thames tunnel, £11 per ton of rock in Mont Cenis, and £9 per ton in St. Gothard.

U. AND V.

UMBRELLAS

In France the value of those made yearly is known, and if four francs be taken as the average price, the account will stand thus :—

Year	Makers	Umbrellas	Value, £
1830 . . .	160	1,800,000	280,000
1847 . . .	303	2,500,000	405,000
1882 . . .	890	7,500,000	1,180,000

The value of British umbrellas exported from the United Kingdom was :—

Year	£
1875	360,000
1889	610,000

London imports about 3,000,000 umbrellas from the United Kingdom, and one million from other countries. China exports a large number of paper-covered umbrellas.

VITAL STATISTICS

The following is a conspectus of births, deaths, and marriages in various countries, showing the average for ten years ending 1888, or the latest available group of years :—

	Births	Deaths	Surplus of Births	Marriages
England . .	890,000	521,000	369,000	202,000
Scotland . .	125,000	74,000	51,000	26,000
Ireland . .	117,000	90,000	27,000	21,000
U. Kingdom	1,132,000	685,000	447,000	249,000
France . .	923,000	844,000	79,000	282,000
Germany .	1,722,000	1,177,000	545,000	357,000
Russia . .	3,790,000	2,733,000	1,057,000	695,000
Austria . .	862,000	674,000	188,000	175,000
Hungary . .	713,000	556,000	157,000	159,000
Italy . . .	1,074,000	813,000	261,000	224,000
Spain . . .	575,000	514,000	61,000	118,000
Portugal . .	155,000	110,000	45,000	33,300
Sweden . .	137,000	79,000	58,000	29,500
Norway . .	60,000	32,000	28,000	12,700
Denmark .	65,500	38,500	27,000	15,200
Holland . .	147,000	91,000	56,000	30,300
Belgium . .	175,000	119,000	56,000	39,800
Switzerland .	82,500	61,000	21,500	19,900
Roumania .	198,000	137,000	61,000	41,600
Servia . .	90,500	52,000	38,500	21,200
Greece . .	46,000	32,500	13,500	10,200
Europe . .	11,947,500	8,748,000	3,199,500	2,512,700
Australia .	121,500	48,000	73,500	25,800
Uruguay .	23,600	10,300	13,300	3,400
Japan . . .	981,000	739,000	242,000	305,000

Under the title of *Births, Deaths, and Marriages,* detailed statistics will be found, showing the birth-rate, death-rate, and other important considerations bearing on vital statistics. The above table shows that there are in Europe 33,000 births and 24,000 deaths daily, or 16 births and 12 deaths a minute. It shows also that the ordinary excess of births over deaths in Europe is 3,200,000 yearly ; but the increase of population is not more than 2,400,000, as the ordinary emigration is 960,000, the number of emigrants returning to Europe being under 200,000.

The number of births, deaths, and marriages was as follows :—

Births

Year	England	Scotland	Ireland	U. Kingdom
1870 . .	793,000	115,000	150,000	1,058,000
1871 . .	797,000	116,000	152,000	1,065,000
1872 . .	826,000	119,000	149,000	1,094,000
1873 . .	830,000	120,000	144,000	1,094,000
1874 . .	855,000	124,000	141,000	1,120,000
1875 . .	851,000	124,000	138,000	1,113,000
1876 . .	888,000	127,000	140,000	1,155,000
1877 . .	888,000	127,000	140,000	1,155,000
1878 . .	892,000	127,000	134,000	1,153,000
1879 . .	883,000	126,000	135,000	1,144,000
Average .	850,000	124,000	142,000	1,116,000
1880 . .	882,000	125,000	128,000	1,135,000
1881 . .	884,000	126,000	126,000	1,136,006
1882 . .	889,000	126,000	123,000	1,138,000
1883 . .	891,000	124,000	118,000	1,133,000
1884 . .	907,000	129,000	119,000	1,155,000
1885 . .	894,000	126,000	116,000	1,136,000
1886 . .	904,000	128,000	114,000	1,146,000
1887 . .	886,000	124,000	112,000	1,122,000
1888 . .	880,000	123,000	110,000	1,113,000
1889 . .	885,000	123,000	108,000	1,116,000
Average .	890,000	125,000	117,000	1,132,000

Deaths

Year	England	Scotland	Ireland	U. Kingdom
1870 . .	515,000	74,000	91,000	680,000
1871 . .	515,000	75,000	89,000	679,000
1872 . .	492,000	76,000	98,000	666,000
1873 . .	493,000	77,000	98,000	668,000
1874 . .	527,000	81,000	92,000	700,000
1875 . .	546,000	82,000	98,000	726,000
1876 . .	510,000	74,000	92,000	676,000
1877 . .	500,000	74,000	94,000	668,000
1878 . .	540,000	77,000	100,000	717,000
1879 . .	528,000	73,000	105,000	706,000
Average .	517,000	76,000	96,000	689,000
1880 . .	529,000	76,000	103,000	708,000
1881 . .	492,000	72,000	90,000	654,000
1882 . .	517,000	73,000	89,000	679,000
1883 . .	523,000	77,000	96,000	696,000
1884 . .	531,000	75,000	87,000	693,000
1885 . .	523,000	75,000	91,000	689,000
1886 . .	537,000	74,000	87,000	698,000
1887 . .	531,000	75,000	89,000	695,000
1888 . .	511,000	71,000	86,000	668,000
1889 . .	517,000	73,000	83,000	673,000
Average .	521,000	74,000	90,000	685,000

Surplus of Births over Deaths

Year	England	Scotland	Ireland	U. Kingdom
1870 . .	278,000	41,000	59,000	378,000
1871 . .	282,000	41,000	63,000	386,000
1872 . .	334,000	43,000	51,000	428,000
1873 . .	337,000	43,000	46,000	426,000
1874 . .	328,000	43,000	49,000	420,000
1875 . .	305,000	42,000	40,000	387,000
1876 . .	378,000	53,000	48,000	479,000
1877 . .	388,000	53,000	46,000	487,000
1878 . .	352,000	50,000	34,000	436,000
1879 . .	355,000	53,000	30,000	438,000
Average .	334,000	46,000	47,000	427,000

Surplus of Births over Deaths.

Year	England	Scotland	Ireland	U. Kingdom
1880 . .	353,000	49,000	25,000	427,000
1881 . .	392,000	54,000	36,000	482,000
1882 . .	372,000	53,000	34,000	459,000
1883 . .	368,000	47,000	22,000	437,000
1884 . .	376,000	54,000	32,000	462,000
1885 . .	371,000	51,000	25,000	451,000
1886 . .	367,000	54,000	27,000	448,000
1887 . .	355,000	49,000	23,000	427,000
1888 . .	369,000	52,000	24,000	445,000
1889 . .	368,000	50,000	25,000	443,000
Average .	369,000	51,000	27,000	447,000

Marriages

1870 . .	182,000	24,000	29,000	235,000
1871 . .	190,000	24,000	29,000	243,000
1872 . .	201,000	26,000	27,000	254,000
1873 . .	206,000	27,000	26,000	259,000
1874 . .	202,000	26,000	24,000	252,000
1875 . .	201,000	26,000	24,000	251,000
1876 . .	202,000	27,000	26,000	255,000
1877 . .	194,000	26,000	25,000	245,000
1878 . .	190,000	24,000	25,000	239,000
1879 . .	182,000	23,000	23,000	228,000
Average .	195,000	25,000	26,000	246,000
1880 . .	192,000	25,000	20,000	237,000
1881 . .	197,000	26,000	22,000	245,000
1882 . .	204,000	27,000	22,000	253,000
1883 . .	206,000	27,000	21,000	254,000
1884 . .	205,000	26,000	23,000	254,000
1885 . .	198,000	25,000	21,000	244,000
1886 . .	196,000	25,000	21,000	242,000
1887 . .	201,000	25,000	21,000	247,000
1888 . .	204,000	25,000	20,000	249,000
1889 . .	214,000	26,000	21,000	261,000
Average .	202,000	26,000	21,000	249,000

INDIA

In 1887 the birth-rates and death-rates per 1000 of population were :—

	Births	Deaths
Bengal	24.7	22.7
North-West and Oude . .	41.2	32.0
Punjaub	38.8	26.9
Central Provinces . .	45.4	34.2
Lower Burmah . .	25.5	19.9
Assam . . .	28.0	27.9
Madras	29.3	21.8
Bombay	34.8	28.8
Mysore	24.1	15.9

FRANCE

Births

Year	Males	Females	Total
1810 . . .	481,000	451,000	932,000
1820 . . .	495,000	465,000	960,000
1830 . . .	497,000	471,000	968,000
1840 . . .	489,000	463,000	952,000
1850 . . .	490,000	464,000	954,000
1860 . . .	490,000	467,000	957,000
1870 . . .	483,000	461,000	944,000
1880 . . .	469,000	451,000	920,000
1885 . . .	474,000	450,000	924,000

Deaths

Year	Males	Females	Total
1810 . . .	379,000	351,000	730,000
1820 . . .	367,000	402,000	769,000
1830 . . .	407,000	401,000	808,000
1840 . . .	406,000	403,000	809,000
1850 . . .	381,000	381,000	762,000
1860 . . .	393,000	389,000	782,000
1870 . . .	553,000	494,000	1,047,000
1880 . . .	443,000	415,000	858,000
1885 . . .	435,000	402,000	837,000

Surplus of Births over Deaths

Year	Males	Females	Total
1810 . . .	102,000	100,000	202,000
1820 . . .	128,000	63,000	191,000
1830 . . .	90,000	70,000	160,000
1840 . . .	83,000	60,000	143,000
1850 . . .	109,000	83,000	192,000
1860 . . .	97,000	78,000	175,000
1870 . . .	...	...	...
1880 . . .	26,000	36,000	62,000
1885 . . .	39,000	48,000	87,000

In 1870 the deaths exceeded the births by 103,000. The sterility of the French people in late years is ominous, the surplus of births over deaths being much less than half what it was seventy years ago.

Marriages

Year	Number	Year	Number	Year	Number
1810 . .	233,000	1840 . .	283,000	1870 . .	224,000
1820 . .	209,000	1850 . .	298,000	1880 . .	279,000
1830 . .	270,000	1860 . .	289,000	1885 . .	283,000

The returns for the latest years were as follows :—

Year	Births	Deaths	Marriages	Still-births
1886 . . .	913,000	860,000	283,000	43,600
1887 . . .	899,000	843,000	277,000	42,900
1888 . . .	883,000	838,000	277,000	42,100
1879–88 . .	923,000	844,000	282,000	43,500

GERMANY

Births

Year	Prussia	Bavaria	Saxony	Wurtemburg	Duchies, &c.	Empire
1879	1,052,000	208,000	125,000	81,000	270,000	1,736,000
1880	1,029,000	203,000	123,000	78,000	263,000	1,696,000
1881	1,013,000	204,000	125,000	77,000	263,000	1,682,000
1882	1,036,000	202,000	127,000	76,000	261,000	1,702,000
1883	1,029,000	197,000	127,000	73,000	258,000	1,684,000
1884	1,051,000	204,000	133,000	74,000	264,000	1,726,000
1885	1,065,000	200,000	133,000	72,000	260,000	1,730,000
1886	1,074,000	200,000	137,000	71,000	264,000	1,746,000
1887	1,085,000	200,000	137,000	70,000	265,000	1,757,000
1888	1,091,000	197,000	140,000	69,000	264,000	1,761,000
Average	1,052,000	202,000	131,000	74,000	263,000	1,722,000

Official returns are as follow :—

Deaths

Year	Prussia	Bavaria	Saxony	Wurtemburg	Duchies, &c.	Empire
1879	667,000	155,000	81,000	58,000	183,000	1,144,000
1880	693,000	152,000	87,000	56,000	185,000	1,173,000
1881	682,000	152,000	83,000	54,000	185,000	1,156,000
1882	700,000	153,000	86,000	54,000	184,000	1,177,000
1883	711,000	155,000	90,000	51,000	183,000	1,190,000
1884	718,000	154,000	95,000	53,000	183,000	1,203,000
1885	717,000	153,000	91,000	53,000	186,000	1,200,000
1886	743,000	154,000	96,000	50,000	191,000	1,234,000
1887	686,000	151,000	88,000	46,000	181,000	1,152,000
1888	665,000	156,000	87,000	50,000	185,000	1,143,000
Average	698,000	154,000	88,000	53,000	184,000	1,177,000

Surplus of Births over Deaths

Year	Prussia	Bavaria	Saxony	Wurtemburg	Duchies, &c.	Empire
1879	385,000	53,000	44,000	23,000	87,000	592,000
1880	336,000	51,000	36,000	22,000	78,000	523,000
1881	331,000	52,000	42,000	23,000	78,000	526,000
1882	336,000	49,000	41,000	22,000	77,000	525,000
1883	318,000	42,000	37,000	22,000	75,000	494,000
1884	333,000	50,000	38,000	21,000	81,000	523,000
1885	348,000	47,000	42,000	19,000	74,000	530,000
1886	331,000	46,000	41,000	21,000	73,000	512,000
1887	399,000	49,000	49,000	24,000	84,000	605,000
1888	426,000	41,000	53,000	19,000	79,000	618,000
Average	354,000	48,000	43,000	21,000	79,000	545,000

Marriages

Year	Prussia	Bavaria	Saxony	Wurtemburg	Duchies, &c.	Empire
1879	207,000	35,000	25,000	13,000	55,000	335,000
1880	208,000	35,000	26,000	13,000	55,000	337,000
1881	210,000	36,000	26,000	12,000	55,000	339,000
1882	217,000	38,000	27,000	13,000	55,000	350,000
1883	221,000	36,000	27,000	12,000	57,000	353,000
1884	226,000	37,000	29,000	12,000	59,000	363,000
1885	231,000	36,000	29,000	13,000	60,000	369,000
1886	232,000	37,000	30,000	13,000	60,000	372,000
1887	230,000	37,000	30,000	14,000	60,000	371,000
1888	233,000	38,000	30,000	13,000	63,000	377,000
Average	221,000	37,000	28,000	13,000	58,000	357,000

Still-Births

Year	Prussia	Bavaria	Saxony	Wurtemburg	Duchies, &c.	Empire
1879	45,000	7,200	5,300	3,100	10,400	71,000
1880	43,000	7,000	5,100	3,100	9,800	68,000
1881	42,000	6,900	5,000	2,900	10,200	67,000
1882	43,000	7,000	5,000	2,800	9,200	67,000
1883	42,000	6,900	4,900	2,700	9,500	66,000
1884	43,000	7,200	5,100	2,900	9,800	68,000
1885	44,000	7,000	5,100	2,800	10,100	69,000
1886	44,000	6,800	5,300	2,800	9,100	68,000
1887	44,000	6,900	5,300	2,500	9,300	68,000
1888	43,000	6,600	5,500	2,500	9,400	67,000
Average	43,000	7,000	5,100	2,800	9,700	68,000

RUSSIA

Official returns are as follows :—

Year	Births	Deaths	Marriages	Surplus of Births
1856 . . .	2,706,900	2,146,900	557,100	560,000
1863 . . .	3,045,000	2,308,000	577,300	737,000
1876 . . .	3,549,000	2,443,000	590,000	1,106,000
1877 . . .	3,531,000	2,451,000	527,000	1,080,000
1878 . . .	3,418,000	2,760,000	665,000	658,000
1879 . . .	3,662,000	2,541,000	743,000	1,121,000
1880 . . .	3,669,000	2,658,000	702,000	1,011,000
1881 . . .	3,678,000	2,633,000	769,000	1,045,000
1882 . . .	3,906,000	3,034,000	716,000	872,000
1883 . . .	3,881,000	2,879,000	733,000	1,002,000
1884 . . .	4,336,000	2,857,000	754,000	1,479,000
1885 . . .	4,266,000	3,071,000	747,000	1,195,000
1876–85 . .	3,790,000	2,733,000	695,000	1,057,000

The above is only European Russia, exclusive of Poland, Finland, &c.

The following table shows the births and deaths of the whole Empire in 1887 :—

	Births	Deaths	Surplus of Births
Russia . .	3,942,000	2,742,000	1,200,000
Poland . .	329,000	202,000	127,000
Finland (1886) .	79,000	50,000	29,000
Siberia . .	212,000	150,000	62,000
Caucasus . .	268,000	172,000	96,000
Turkestan . .	52,000	42,000	10,000
Total .	4,882,000	3,358,000	1,524,000

Exclusive of the Asiatic provinces, Russia has an increase of 1,300,000 souls yearly.

AUSTRIA

The official returns for ten years ending 1887 were :—

Births

Year	Austria	Hungary	Total
1878 . . .	855,000	665,000	1,520,000
1879 . . .	857,000	714,000	1,571,000
1880 . . .	829,000	672,000	1,501,000
1881 . . .	833,000	677,000	1,510,000
1882 . . .	874,000	697,000	1,571,000
1883 . . .	859,000	719,000	1,578,000
1884 . . .	878,000	741,000	1,619,000
1885 . . .	861,000	737,000	1,598,000
1886 . . .	876,000	760,000	1,636,000
1887 . . .	889,000	744,000	1,633,000
Average . .	862,000	713,000	1,575,000

Deaths

Year	Austria	Hungary	Total
1878 . . .	684,000	586,000	1,270,000
1879 . . .	652,000	566,000	1,218,000
1880 . . .	654,000	593,000	1,247,000
1881 . . .	677,000	553,000	1,230,000
1882 . . .	687,000	572,000	1,259,000
1883 . . .	677,000	527,000	1,204,000
1884 . . .	667,000	515,000	1,182,000
1885 . . .	689,000	536,000	1,225,000
1886 . . .	678,000	540,000	1,218,000
1887 . . .	672,000	569,000	1,241,000
Average . .	674,000	556,000	1,230,000

Surplus of Births over Deaths

Year	Austria	Hungary	Total
1878 . . .	171,000	79,000	250,000
1879 . . .	205,000	148,000	353,000
1880 . . .	175,000	79,000	254,000
1881 . . .	156,000	124,000	280,000
1882 . . .	187,000	125,000	312,000
1883 . . .	182,000	192,000	374,000
1884 . . .	211,000	226,000	437,000
1885 . . .	187,000	201,000	388,000
1886 . . .	198,000	220,000	418,000
1887 . . .	217,000	175,000	392,000
Average . .	188,000	157,000	345,000

Marriages

Year	Austria	Hungary	Total
1878 . . .	164,000	147,000	311,000
1879 . . .	169,000	162,000	331,000
1880 . . .	167,000	144,000	311,000
1881 . . .	177,000	158,000	335,000
1882 . . .	183,000	164,000	347,000
1883 . . .	176,000	168,000	344,000
1884 . . .	179,000	167,000	346,000
1885 . . .	175,000	165,000	340,000
1886 . . .	180,000	161,000	341,000
1887 . . .	182,000	152,000	334,000
Average . .	175,000	159,000	334,000

Still-Births

Year	Austria	Hungary	Total
1878 . . .	21,500	9,400	30,900
1879 . . .	22,500	10,800	33,300
1880 . . .	22,000	10,400	32,400
1881 . . .	22,500	10,900	33,400
1882 . . .	24,000	11,300	35,300
1883 . . .	23,800	12,300	36,100
1884 . . .	24,500	12,700	37,200
1885 . . .	24,500	13,100	37,600
1886 . . .	24,900	13,600	38,500
1887 . . .	26,100	13,800	39,900
Average . .	23,600	11,800	35,400

ITALY

Official returns come down to 1887, and show thus for ten years :—

Year	Births	Deaths	Surplus of Births	Marriages	Still-Births
1878 . .	1,012,000	814,000	198,000	200,000	31,300
1879 . .	1,064,000	837,000	227,000	213,000	33,600
1880 . .	958,000	870,000	88,000	197,000	30,400
1881 . .	1,081,000	784,000	297,000	230,000	35,300
1882 . .	1,061,000	787,000	274,000	224,000	35,400
1883 . .	1,071,000	794,000	277,000	232,000	37,200
1884 . .	1,131,000	780,000	351,000	240,000	38,300
1885 . .	1,126,000	787,000	339,000	234,000	39,300
1886 . .	1,087,000	845,000	242,000	233,000	39,200
1887 . .	1,153,000	829,000	324,000	236,000	42,500
Average .	1,074,000	813,000	261,000	224,000	36,300

SPAIN

Vital statistics are neglected and much in arrear :—

Year	Births	Deaths	Surplus of Births	Marriages
1868 . . .	580,000	549,000	31,000	112,000
1869 . . .	602,000	551,000	51,000	137,000
1870 . . .	600,000	510,000	90,000	106,000
1884 . . .	518,000	444,000	74,000	...
Average . .	575,000	514,000	61,000	118,000

PORTUGAL

According to the official returns we find :—

Year	Births	Deaths	Surplus of Births	Marriages
1873 . . .	148,000	116,000	32,000	32,100
1874 . . .	153,000	117,000	36,000	33,300
1875 . . .	154,000	107,000	47,000	33,100
1886 . . .	156,000	99,000	57,000	33,700
1887 . . .	166,000	109,000	57,000	34,300
Average . .	155,000	110,000	45,000	33,300

SWEDEN

Year	Births	Deaths	Surplus of Births	Marriages	Still-Births
1879 . .	139,000	77,000	62,000	28,600	4,200
1880 . .	134,000	83,000	51,000	28,900	4,000
1881 . .	133,000	81,000	52,000	28,300	3,900
1882 . .	134,000	79,000	55,000	29,000	3,800
1883 . .	133,000	79,000	54,000	29,400	3,700
1884 . .	139,000	81,000	58,000	30,200	3,800
1885 . .	137,000	83,000	54,000	30,900	4,000
1886 . .	140,000	78,000	62,000	30,100	4,000
1887 . .	140,000	76,000	64,000	29,500	3,900
1888 . .	136,000	76,000	60,000	28,100	3,800
Average .	137,000	79,000	58,000	29,500	3,900

NORWAY

Year	Births	Deaths	Surplus of Births	Marriages	Still-Births
1879 . .	61,000	29,000	32,000	12,900	2,200
1880 . .	59,000	31,000	28,000	12,800	2,100
1881 . .	58,000	32,000	26,000	12,300	2,000
1882 . .	59,000	35,000	24,000	12,900	1,900
1883 . .	59,000	33,000	26,000	12,700	1,800
1884 . .	60,000	32,000	28,000	13,300	1,800
1885 . .	61,000	32,000	29,000	13,000	1,800
1886 . .	61,000	32,000	29,000	12,800	1,800
1887 . .	61,000	32,000	29,000	12,500	1,700
1888 . .	61,000	34,000	27,000	12,200	1,800
Average .	60,000	32,000	28,000	12,700	1,900

DENMARK

Year	Births	Deaths	Surplus of Births	Mar-riages	Still-Births
1879 . .	62,000	39,000	23,000	14,300	1,900
1880 . .	63,000	40,000	23,000	15,000	1,900
1881 . .	64,000	36,000	28,000	15,500	2,000
1882 . .	65,000	39,000	26,000	15,500	1,900
1883 . .	64,000	37,000	27,000	15,600	1,900
1884 . .	68,000	38,000	30,000	16,000	1,900
1885 . .	67,000	37,000	30,000	15,600	2,100
1886 . .	68,000	38,000	30,000	14,800	2,000
1887 . .	67,000	39,000	28,000	14,700	2,000
1888 . .	67,000	42,000	25,000	15,100	1,800
Average .	65,500	38,500	27,000	15,200	1,940

HOLLAND

Year	Births	Deaths	Surplus of Births	Mar-riages	Still-Births
1879 . .	147,000	90,000	57,000	30,700	8,100
1880 . .	144,000	95,000	49,000	30,300	7,500
1881 . .	143,000	88,000	55,000	29,800	7,700
1882 . .	146,000	86,000	60,000	29,600	7,400
1883 . .	144,000	92,000	52,000	29,800	7,700
1884 . .	148,000	94,000	54,000	30,500	7,600
1885 . .	148,000	90,000	58,000	29,900	7,800
1886 . .	151,000	95,000	56,000	30,300	7,800
1887 . .	149,000	87,000	62,000	30,900	7,700
1888 . .	151,000	91,000	60,000	30,900	7,800
Average .	147,000	91,000	56,000	30,300	7,710

BELGIUM

Official returns from 1831 to 1887 show as follows : —

Period	Births	Deaths	Surplus of Births	Marriages
1831–40 . .	140,000	108,000	32,000	30,200
1841–50 . .	130,000	104,000	26,000	29,000
1851–60 . .	137,000	102,000	35,000	33,600
1861–70 . .	155,000	114,000	41,000	36,100
1871–80 . .	172,000	120,000	52,000	38,900
1881–87 . .	175,000	118,000	57,000	39,900

SWITZERLAND

Year	Births	Deaths	Surplus of Births	Mar-riages	Still-Births
1879 . .	86,000	64,000	22,000	19,500	3,500
1880 . .	84,000	62,000	22,000	19,400	3,200
1881 . .	85,000	64,000	21,000	19,400	3,400
1882 . .	83,000	63,000	20,000	19,400	3,300
1883 . .	82,000	59,000	23,000	19,700	3,200
1884 . .	82,000	58,000	24,000	19,800	3,200
1885 . .	80,000	62,000	18,000	20,100	3,200
1886 . .	81,000	60,000	21,000	20,100	3,400
1887 . .	81,000	59,000	22,000	20,600	3,400
1883 . .	81,000	58,000	23,000	20,700	3,300
Average .	82,500	61,000	21,500	19,900	3,300

ROUMANIA

Year	Births	Deaths	Surplus of Births	Mar-riages	Still-Births
1879 . .	168,000	132,000	36,000	46,000	1,900
1880 . .	171,000	163,000	8,000	40,000	2,300
1881 . .	192,000	123,000	69,000	42,000	1,900
1882 . .	189,000	132,000	57,000	44,000	2,200
1883 . .	204,000	124,000	80,000	47,000	2,000
1884 . .	201,000	124,000	77,000	41,000	2,300
1885 . .	214,000	124,000	90,000	40,000	2,200
1886 . .	213,000	135,000	78,000	39,000	2,400
1887 . .	210,000	156,000	54,000	39,000	2,500
1888 . .	220,000	159,000	61,000	38,000	2,500
Average .	198,000	137,000	61,000	41,600	2,200

SERVIA

Year	Births	Deaths	Surplus of Births	Mar-riages	Still-Births
1884 . .	90,000	48,000	42,000	20,400	1,100
1885 . .	91,000	52,000	39,000	17,100	1,300
1886 . .	83,000	59,000	24,000	23,300	1,400
1887 . .	94,000	50,000	44,000	22,600	1,400
1888 . .	95,000	51,000	44,000	22,800	1,500
Average .	90,500	52,000	38,500	21,200	1,340
1868–77 .	56,100	44,700	11,400	14,700	...

GREECE

Year	Births	Deaths	Surplus of Births	Marriages
1864–73 . .	41,000	30,700	10,300	8,900
1880 . . .	41,300	30,300	11,000	8,500
1881 . . .	41,700	32,200	9,500	7,800
1882 . . .	43,200	32,200	11,000	11,200
1884 . . .	58,000	35,900	22,100	13,700
1880–84 . .	46,000	32,500	13,500	10,200

URUGUAY

Year	Births	Deaths	Surplus of Births	Marriages
1882 . . .	21,700	9,100	12,600	3,300
1883 . . .	22,300	8,500	13,800	3,400
1884 . . .	21,800	9,700	12,100	3,500
1885 . . .	23,800	9,700	14,100	3,700
1886 . . .	24,700	11,100	13,600	3,100
1887 . . .	25,100	12,000	13,100	3,400
1888 . . .	25,800	11,600	14,200	4,000
Average . .	23,600	10,300	13,300	3,400

AUSTRALIA (1888)

	Births	Deaths	Surplus of Births	Mar-riages
New South Wales .	38,500	14,400	24,100	7,800
Victoria . . .	34,500	16,300	18,200	8,500
Queensland .	14,200	5,500	8,700	3,300
South Australia .	10,500	3,800	6,700	2,100
New Zealand .	18,900	5,700	13,200	3,600
Tasmania . .	4,800	2,000	2,800	950
Western Australia .	1,500	700	800	300
Total . .	122,900	48,400	74,500	26,550
1861 . . .	52,300	21,200	31,100	10,900
1871 . . .	74,200	24,800	49,400	13,500
1881 . . .	98,700	38,800	59,900	20,500
1887 . . .	120,100	47,600	72,500	25,100

JAPAN

Year	Births	Deaths	Surplus of Births	Marriages
1879 . . .	877,000	721,000	156,000	...
1880 . . .	884,000	603,000	281,000	...
1881 . . .	941,000	686,000	255,000	...
1882 . . .	923,000	668,000	255,000	...
1883 . . .	1,005,000	676,000	329,000	...
1884 . . .	975,000	705,000	270,000	288,000
1885 . . .	1,025,000	887,000	138,000	259,000
1886 . . .	1,051,000	938,000	113,000	315,000
1887 . . .	1,058,000	753,000	303,000	334,000
1888 . . .	1,073,000	753,000	320,000	330,000
Average . .	981,000	739,000	242,000	305,000

W.

WAGES

The earliest scale of wages is that fixed by the Emperor Diocletian, A.D. 303, for the whole Roman Empire, viz. :—

Wages Daily without Food, Pence English

Shepherd	.	.	10	Labourer	.	.	10	Painter . . . 30
Ass-driver	.	.	10	Mason	.	.	20	Smith . . . 20
Baker	.	.	20	Carpenter	.	.	20	Stonecutter . 25

The pay to a brickmaker was 12d. per 100 ; to a sheep-shearer, 8od. per 100 ; to a common schoolmaster, 3od. per month ; to one who taught Greek or geometry, 1cod. per month for each pupil ; and a lawyer's fee was 6ood.

The following is a table of international wages at three periods of the present century, reduced to English money (see Embassy Reports, 1869) :—

	Day Labour, Pence			Indoor Labour, £ per Annum		Female Labour, £ per Annum	
	1835	1865	1880	1835	1880	1835	1880
England . . .	20	26	30	12	20	6	9
Scotland . . .	16	25	28	9	18	5	8
Ireland . . .	8	14	18	5	10	2	5
France	15	20	25	8	12	3	6
Germany . . .	8	16	18	4	10	2	5
Russia	6	12	12	3	8	2	4
Austria . . .	10	16	20	8	12	2	4
Italy	4	8	10	2	6	1	3
Holland . . .	9	15	20	6	10	3	5
Belgium . . .	9	18	20	6	10	3	5
Scandinavia . .	8	...	14	4	8	2	4
Spain & Portugal	8	10	16	...	8	...	5
United States .	42	74	66	28	40	...	...

Tradesmen's wages in 1880 in various countries were as follows :—

				Shillings per Week					
				Great Britain	France	Belgium	Germany	Italy	New York	Chicago
Printer	.	.	.	32	20	19	20	16	54	62
Painter	.	.	.	32	21	18	16	19	54	38
Plumber	.	.	.	33	23	25	15	16	62	66
Tailor	.	.	.	25	21	17	15	18	58	50
Shoemaker	.	.	.	31	20	14	13	18	62	56
Carpenter	.	.	.	33	23	23	16	17	44	42
Mason	.	.	.	35	17	25	15	15	56	33
Smith	.	.	.	31	23	18	15	16	50	44
Tinsmith	.	.	.	28	18	20	16	15	50	44
Baker	.	.	.	27	23	18	15	16	...	42
Collier	.	.	.	24	15	14	16	...	...	...

The wages of farm labourers by the week in various countries were :—

				1850			1870			1880		
				£	s.	d.	£	s.	d.	£	s.	d.
England .	.	.	.	0	9	6	0	15	0	0	17	6
France .	.	.	.	0	9	0	0	12	6	0	14	0
Germany .	.	.	.	0	8	6	0	10	6	0	12	6
United States .	.	.	0	16	0	1	0	0	1	5	0

Young's table of wages in Europe is as follows :—

	Pence per Day				
	1830–39	1840–49	1850–59	1860–65	1872
Boilermaker . .	13	15	17	21	31
Cabinetmaker . .	13	14	17	20	28
Carpenter . .	14	15	18	25	31
Chemical operator	12	14	15	19	23
Cutler	14	16	20	22	26
Dyer	14	16	19	21	26
Jeweller . . .	20	24	25	32	50
Mason	14	16	19	26	32
Papermaker . .	12	14	17	19	26
Pianomaker . .	18	21	26	32	50
Printer	22	25	25	34	50
Painter	19	22	26	33	40
Sawyer	13	14	17	21	28
Shoemaker . . .	11	12	14	17	25
Smith	12	14	19	21	26
Stonecutter . . .	17	20	24	32	45
Spinner	14	15	19	22	27
Tailor	11	12	15	18	26
Tanner	14	15	18	21	27
Turner	12	13	16	18	27
Average	13	15	18	22	27

An Italian economist compares a bricklayer's wages at various dates in three countries thus :—

Year	Pence per Day		
	France	Switzerland	Italy
1850 . . .	21	17	15
1857 . . .	24	25	17
1874 . . .	31	38	35

White's memoir gives the following scale of wages in England, France, and United States in 1825 (an asterisk signifies " with food ") :—

	England		France		U. States	
	s.	d.	s.	d.	s.	d.
Carpenter, by day . .	4	0	2	6	6	0
Mason, ,, . .	4	6	3	0	6	8
Machinist, ,, . .	4	6	3	6	5	6
Cotton-spinner, by day .	4	0	3	6	5	0
Woollen-spinner, ,, .	3	9	3	8	4	6
Weaver, ,, .	3	0	2	0	3	9
Farm labourer,* month .	27	0	20	0	38	0
Housemaid,* week . .	3	0	...		5	0

Tailors' wages in various countries in 1880 were as follows :—

Shillings Weekly

Great Britain	.	.	25	Belgium	.	.	.	17
France .	.	.	21	Italy .	.	.	.	18
Germany	.	.	15	New York	.	.	.	58

The pay in European armies in 1880 was as follows :—

				£ Sterling per Annum		
				English	French	Italian
General	.	.	.	...	660	600
Colonel	.	.	.	1,000	280	280
Lieutenant-colonel	.		320	220	210
Major .	.	.	.	292	180	170
Captain	.	.	.	212	120	120
Lieutenant	.	.	.	118	80	90
Ensign .	.	.	.	100	52	...
Sergeant	.	.	.	36	15	...
Private .	.	.	.	18	5	...

The wages in woollen mills in various countries in 1880 were as follows:—

| | Shillings per Week | | | | |
	England	France	Belgium	Germany	U. States
Sorter . .	24	22	10*	5*	44
Carder .	24	11*	8*	8*	25
Spinner .	12*	11*	...	12	26*
Dresser .	24	16	12	7*	54
Weaver .	30	24	18	12	35
Fireman .	26	19	15	...	35
Carpenter	33	27	15	...	52
Engineer .	40	27	18	16	75

(The asterisk signifies female hands).

In 1880 was published the following table of relation between wages and food in various countries:—

| | Shillings per Week | | | Ratio | | |
	Wages	Food	Surplus	Wages	Food	Surplus
Great Britain .	31	14	19	100	45	55
France . . .	21	12	10	100	57	43
Germany . . .	16	10	6	100	62	38
Belgium . . .	20	12	8	100	60	40
Italy	15	9	6	100	60	40
Spain	16	10	6	100	62	38
United States .	48	16	32	100	33	67
Australia . . .	40	11	29	100	28	72

UNITED KINGDOM

| Year | Nominal Wage | | | | In Weight of Silver | | | | In Purchasing Value | | | |
| | Shepherd | Labourer | Woman | Boy | Shepherd | Labourer | Woman | Boy | Shepherd | Labourer | Woman | Boy |
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1400 . .	0 16 0	0 12 0	0 8 0	0 6 0	1 17 0	1 8 0	0 18 6	0 14 0	5 18 0	4 8 0	3 0 0	2 4 0
1450 . .	1 0 0	0 16 0	0 12 0	0 8 0	1 18 0	1 10 0	1 3 0	0 15 6	6 10 0	5 5 0	4 0 0	2 10 0
1500 . .	1 6 0	1 0 0	0 14 0	0 10 0	2 0 0	1 11 0	1 2 0	0 15 6	7 16 0	6 0 0	4 4 0	3 0 0
1550 . .	1 10 0	1 6 0	0 16 0	0 12 0	2 0 0	1 15 0	1 1 0	0 16 0	8 0 0	7 0 0	4 4 0	3 4 0
1600 . .	1 16 0	1 12 0	1 0 0	0 18 0	2 0 0	1 15 0	1 2 0	1 0 0	6 0 0	5 5 0	3 6 0	3 0 0
1650 . .	4 0 0	2 10 0	1 12 0	1 4 0	4 0 0	2 12 0	1 14 0	1 5 0	8 0 0	5 4 0	3 8 0	2 10 0
1700 . .	5 0 0	4 0 0	3 0 0	2 10 0	5 5 0	4 4 0	3 3 0	2 12 0	10 10 0	8 8 0	6 6 0	5 4 0
1750 . .	6 10 0	5 0 0	4 0 0	3 0 0	6 16 0	5 5 0	4 4 0	3 3 0	10 0 0	7 15 0	6 6 0	4 15 0
1800 . .	16 0 0	12 0 0	8 0 0	6 0 0	16 16 0	12 12 0	8 8 0	6 6 0	16 16 0	12 12 0	8 8 0	6 6 0
1850 . .	25 0 0	20 0 0	10 0 0	8 0 0	25 0 0	20 0 0	10 0 0	8 0 0	25 0 0	20 0 0	10 0 0	8 0 0
1880 . .	36 0 0	30 0 0	15 0 0	10 0 0	36 0 0	30 0 0	15 0 0	10 0 0	36 0 0	30 0 0	15 0 0	10 0 0

In the Middle Ages the pay of fighting men was:—

	Old Money, Groats	Present Value, £ s. d.
Count .	40	2 2 0
Baron .	20	1 1 0
Knight .	12	0 13 0
Man-at-arms .	3	0 3 0
Cross-bowman	1	0 1 0
Archer .	½	0 0 6

Artisans' wages in England have been approximately as follows:—

| Year | Shillings per Week | | | | |
	Black-smith	Mason	Carpenter	Plumber	Cotton-spinner
1740 . . .	16	16	15	18	12
1780 . . .	17	17	15	18	12
1820 . . .	24	25	20	25	16
1840 . . .	21	23	20	22	18
1860 . . .	28	30	25	30	20
1880 . . .	32	35	30	35	24

Wages in cotton-mills, according to Ellison, have been as follows:—

| | 1839 | 1849 | 1859 | 1887 |
| | 69 Hours | 60 Hours | | 57 Hours |
	s. d.	s. d.	s. d.	s. d.
Scutcher . . .	7 0	7 6	8 0	13 0
Stripper . . .	11 0	12 0	14 0	17 0
Overlooker . .	25 0	28 0	28 0	44 0
Mule-minder . .	16 0	18 0	20 0	31 0
Piecer . . .	8 0	9 0	10 0	15 0
Spinner . . .	4 0	4 6	5 0	11 0
Winder . . .	9 0	9 6	9 6	15 0
Sizer . . .	23 0	23 0	25 0	35 0
Weaver . . .	13 0	13 0	15 0	17 0

In 1886 Giffen gave the following factory averages:—

| | Wages, Shillings Weekly | | |
	Cotton	Woollen	Linen
Men	25.2	23.2	19.7
Women . . .	15.2	13.2	8.9
Boys	9.3	8.5	6.2
Girls	6.8	7.4	4.9

Arthur Young found the weekly wages in 1768 thus:—

	£ s. d.		£ s. d.
Farm labourer .	0 7 0	Cutler	0 14 0
Woman labourer .	0 3 0	Weaver . . .	0 7 6
Collier	0 15 0	Woman do. . .	0 4 7

Dr. Giffen gives the following table of agricultural wages in 1835 and 1885 per week:—

| | 1835 | 1885 |
	£ s. d.	£ s. d.
Surrey .	0 10 6	0 16 0
Sussex .	0 10 7	0 14 0
Essex .	0 10 4	0 13 6
Dorset .	0 7 6	0 12 6
Warwick .	0 10 0	0 16 0
Cheshire .	0 13 0	0 15 6
York .	0 12 0	0 17 6
Wales .	0 7 6	0 14 6
Scotland .	0 9 6	0 16 6
Ireland .	0 4 6	0 8 0

In 1881 was published the following comparison between the wages of cotton-mill operatives in Great Britain and those in the United States:—

| | Shillings per Week | | | |
	England	United States	England	United States
Sizers . .	36	40	Cardboys .	14	10
Weavers . .	30	35	Doffers . .	15	16
Pickers . .	15	28	Warpers . .	15	16
Strippers . .	17	28	Winders . .	15	16

In 1867 Leone Levi summed up the earnings of the working classes as follows :—

	Millions Sterling per Annum			
	England	Scotland	Ireland	United Kingdom
Agriculture . . .	44	8	23	75
Textiles	33	6	8	47
Building	35	4	4	43
Clothing	21	5	7	33
Metals	27	3	2	32
Ships and railways	25	2	1	28
Mines	13	2	...	15
Servants	47	5	8	60
Various	66	8	12	86
Total . .	311	43	65	419

In 1884 he published a second table in which he compared the earnings with 1867 thus :—

	Per Head, £		Total, Millions £	
	1867	1884	1867	1884
Males under 20 . .	19	18	23	29
Females ,, . .	20	23	27	30
Males over 20 . .	50	56	294	363
Females ,, . .	29	37	75	99
General average . .	38	43	419	521

The wages of able-bodied seamen, according to the *Year-Book of Commerce*, averaged as follows :—

Voyage	Shillings per Month					
	1860	1865	1870	1875	1880	1889
Mediterranean .	55	55	52	70	55	60
North America .	55	50	55	70	50	60
South America .	50	50	50	65	50	60
Africa	55	50	50	65	53	60
India	50	50	50	65	50	60
Australia . . .	50	50	50	65	50	60
Average . . .	53	51	51	67	51	60

The above were the rates in sailing vessels, the pay in steamers being usually 10s. a month higher.

From miscellaneous statistics published by the Board of Trade, the wages in 1880 appear as follows :—

Trade	Locality	Shillings Weekly	Hours per Week
Bookbinding . .	Edinburgh	24	54
Builders . . .	London	25	52
,, . . .	Portsmouth	21	56
,, . . .	Bristol	21	54
,, . . .	Liverpool	22	50
,, . . .	Sheffield	20	48
,, . . .	Edinburgh	20	48
,, . . .	Glasgow	18	48
Chandlery . . .	London	22	...
,, . . .	Bristol	21	64
,, . . .	Liverpool	21	54
Chemical . . .	Liverpool	18	54
,, . . .	Manchester	20	60
Coachbuilding .	London	23	...
,, . . .	Liverpool	20	56
,, . . .	Dublin	16	58
Colliery	Stafford	20	54
,, . . .	Glasgow	18	57
Cotton-mills . .	Manchester	19	...

Trade	Locality	Shillings Weekly	Hours per Week
Cotton-mills . .	Glasgow	16	56
Foundry . . .	Birmingham	18	54
,, . . .	Wolverhampton	18	60
,, . . .	Nottingham	19	54
,, . . .	Manchester	18	54
,, . . .	Sheffield	19	54
,, . . .	Cleveland	19	60
Gasworks . . .	London	25	...
,, . . .	Bristol	21	70
,, . . .	Birmingham	20	54
,, . . .	Liverpool	21	56
,, . . .	Manchester	20	60
,, . . .	Edinburgh	20	...
,, . . .	Dublin	18	56
Hosiery . . .	Leicester	18	54
Jute	Dundee	15	56
Linen-mills . .	Dundee	19	56
Machinery . . .	Manchester	17	54
,, . . .	Glasgow	17	54
,, . . .	Birmingham	18	54
Paper-mills . .	London	21	60
,, . . .	Manchester	19	60
,, . . .	Edinburgh	15	60
Porcelain . . .	Stafford	15	...
Screws	Birmingham	24	54
Shipbuilding . .	Glasgow	16	54
,, . . .	Liverpool	21	54
,, . . .	Hull	19	54
,, . . .	Dundee	16	54
Sugar	London	25	59
,, ...	Bristol	17	59
,, ...	Greenock	17	60
Twine	London	20	54
,, ...	Liverpool	20	60
,, ...	Greenock	18	56
,, ...	Dundee	18	56
Woollen-mills .	Stroud	15	56
,, .	Huddersfield	20	56

In 1882 the ordinary wages in piece-work for army-clothing were as follows :—

	Pence		Pence
Tunic	38	Dozen caps . .	30
Trousers . . .	14	,, towels . .	4
Frock	22	,, belts . .	12

A good worker earns 4s. daily.

The wages of a collier in 1884 averaged 49d. daily, being exactly the same as in 1870, but the output of coal rose in the interval from 230 to 318 tons per miner; thus the cost of extracting a ton of coal was 46d. in 1884, against 65d. in 1870.

FRANCE

Wages in the 13th and 14th centuries, reduced to the same weight of silver in English money of to-day, were as follows per month :—

	£ s. d.		£ s. d.
Archer	0 15 0	Field-marshal .	15 0 0
Baker	0 9 0	Footman . . .	0 5 0
Blacksmith . . .	0 8 0	Gardener . . .	0 18 0
Butler, king's . .	5 10 0	Knight	4 10 0
Carpenter . . .	1 5 0	Milliner . . .	1 2 0
Canon	4 0 0	Queen	800 0 0

In the 15th century they were as follows :—

	£ s. d.		£ s. d.
Archer	0 5 0	Physician . . .	15 0 0
Butler, king's .	15 0 0	Secretary . . .	7 10 0
Chamberlain . .	20 0 0	Surgeon . . .	7 10 0
Chaplain . . .	15 0 0	Huntsman . .	30 0 0

De Foville gives the following wages in Paris from 1805 to 1875 :—

Trade	Pence per Day				
	1805	1810	1853	1866	1875
Bricklayer . . .	31	38	50	57	60
Carpenter . . .	29	31	48	57	57
Fitter	36	38	40	44	50
Glazier . . .	29	...	36	48	50
Joiner	33	30	38	43	48
Locksmith . . .	...	...	38	48	48
Labourer . . .	16	18	24	32	33
Mason	31	31	40	50	53
Navvy	21	21	28	38	38
Painter . . .	40	...	38	48	57
Plumber . . .	40	...	38	53	57
Slater	48	...	48	57	57
Smith	48	48	48	62	67
Stonemason . . .	32	33	48	53	53

The *Revue d'Economique* in 1887 published the following retrospect of wages :—

Year	Pence Daily	
	Rural	Operative
1768	6	9
1789	8	14
1825	12	17
1852	14	20
1872	19	29
1880	22	33

Another French economist gives the following table :—

	Average Daily Wages, Pence					
	1700	1750	1790	1810	1850	1880
Printer . . .	18	20	25	30	25	35
Painter . . .	15	18	20	35	22	33
Carpenter . .	15	18	20	35	22	35
Tailor. . . .	10	15	18	30	20	28
Blacksmith . .	15	18	20	30	25	35
Builder . . .	15	18	20	35	22	35
Bootmaker . .	10	15	18	30	21	28
Plumber . . .	15	18	20	35	22	33
Baker . . .	10	15	18	30	20	33
Milliner . . .	6	8	9	10	13	20
Laundress . .	5	6	8	10	13	18
Farm-labourer .	8	10	12	18	20	25
Woman ,, .	4	5	6	9	10	15
Boy ,, .	2	2	3	4	5	7

Wages of Women in France, Pence Daily

	1844	1853	1860	1872
Dressmakers . . .	12	17	19	19
Flowermakers . . .	15	24	22	28
Shirtmakers . . .	9	15	17	19
Staymakers . . .	10	15	19	19
Embroiderers . . .	15	19	19	28
Closers	15	24	19	28
Lacemakers . . .	15	22	24	28
Laundresses . . .	19	24	24	28

Wages of Miners Weekly

	s.	d.				s.	d.
1860 . . .	11	0	1875 . . .			16	6
1865 . . .	11	6	1880 . . .			16	0
1870 . . .	13	6	1886 . . .			15	6

Wages at Paris and in the departmental towns of France averaged as follows (without food) in 1885 :—

	Pence Daily				Pence Daily	
	Paris	Departments			Paris	Departments
Baker . . .	67	35	Hatter . .		62	35
Binder . .	53	30	Laundress .		38	18
Blacksmith .	67	37	Painter . .		72	36
Brewer . .	48	33	Plumber . .		57	36
Bricklayer .	77	35	Printer . .		62	37
Cabinetmaker	74	35	Saddler . .		43	33
Carpenter .	82	38	Sawyer . .		67	35
Confectioner	48	28	Shoemaker .		34	29
Cooper . .	48	33	Stonecutter .		82	38
Cutler . .	57	31	Tailor . .		48	33
Dressmaker .	19	17	Tanner . .		48	32
Dyer . . .	43	31	Tinsmith .		48	33
Fireman . .	57	34	Turner . .		48	34
Founder . .	67	37	Waggoner .		48	35
Glazier . .	53	31	Watchmaker		57	40
Hairdresser .	29	27	Weaver . .		36	25

Other occupations showed the following yearly wages :—

	£ per Annum	
	Paris	Departments
Clerks	48	37
Lady-clerks . . .	32	25
Shop-girls . . .	20	20
Footmen . . .	24	18
Housemaids . . .	20	12

GERMANY

Yves Guyot gives the daily wages at Mulhouse in the spinning trade from 1835 to 1880 thus :—

	Pence Daily				
	1835	1845	1855	1865	1880
Overseers .	28	34	42	44	60
Enginemen .	18	22	30	27	34
Oilers . .	15	18	16	24	30
Scutchers .	9	10	10	13	17
Cardmenders	13	14	27	22	26
Throstlers .	15	15	16	17	23
Piecers . .	6	7	12	14	22
Doffers . .	...	...	9	10	16

The wages at Guebwiller silk-factory were as follows :—

	Pence Daily	
	1848	1880
Weavers	26	30
Warpers	19	23
Fluters	7	18
Winders	11	18
Folders	11	23

BELGIUM

Agricultural wages in Belgium at various dates were :—

Year	Pence Daily			
	Men		Women	
	With Food	Without	With Food	Without
1830 . . .	...	10	...	6
1840 . . .	...	11	...	7
1850 . . .	6	11	4	7
1874 . . .	11	19	6	12
1880 . . .	12	23	7	12

ITALY

Bodio's table of wages for certain trades, reduced to English money, gives the following :—

Trade	Shillings per Week			
	1847	1859	1866	1874
Iron mines . .	6	6	6	8
Marble mines . .	10	11	11	19
Chalk mines . .	6	6	9	10
Cotton-mill . .	7	7	8	10
Flax-mill . .	8	10	10	12
Wool-mill . .	6	7	7	8
Silk-mill . .	6	8	8	10
Dyeing . .	9	10	11	12
Tanning . .	6	7	8	10
Stone-cutting . .	9	10	12	13
Foundry . .	8	8	8	10
Masons .. .	7	8	10	14
Mechanics . .	7	9	11	17
Carpenters . .	10	13	16	19
Wheelwrights . .	8	8	9	11
Glass-blowers . .	18	18	22	22
Papermakers . .	5	5	6	6
Compositors . .	7	7	8	11
Tailors . .	6	8	10	12
Brewers . .	7	8	9	11

The aggregate weekly earnings of 20 operatives in the above occupations compared as follows :—

Year					Shillings	Average
1847	.	.	.	.	156	7.8
1859	.	.	.	.	174	8.7
1866	.	.	.	.	199	10.0
1874	.	.	.	.	245	12.3

Thus in 15 years, from 1859 to 1874, wages rose 41 per cent., but it would appear from the subjoined table that there has been hardly any perceptible rise since 1874.

Wages for a Working Day of 10½ *Hours, in English Pence*

Year	Spinners	Weavers	Carpenters	Masons
1862 . .	10.9	12.3	18.2	15.3
1863 . .	11.4	12.7	18.2	15.3
1864 . .	11.4	13.6	18.2	15.3
1865 . .	11.8	14.5	18.2	15.3
1866 . .	12.3	15.4	18.2	15.3
1867 . .	12.7	15.4	18.2	15.3
1868 . .	12.7	15.9	18.2	15.3
1869 . .	13.2	16.4	18.2	15.3
1870 . .	13.6	16.8	22.7	18.2
1871 . .	14.5	17.3	22.7	18.2
1872 . .	16.4	17.7	22.7	18.2
1873 . .	18.2	19.1	22.7	20.5
1874 . .	20.4	21.8	22.7	20.5
1875 . .	20.4	21.8	22.7	20.5
1876 . .	20.4	21.8	22.7	20.5
1877 . .	20.4	21.8	22.7	20.5
1878 . .	20.4	21.8	22.7	20.5
1879 . .	20.4	21.8	22.7	22.7
1880 . .	20.4	22.7	22.7	22.7
1881 . .	20.9	22.7	22.7	22.7
1882 . .	20.9	22.7	24.2	24.2
1883 . .	20.9	22.7	24.2	24.2
1884 . .	20.9	22.7	24.2	24.2

The ratio of increase is shown as follows :—

Year	Spinner	Weaver	Carpenter	Mason
1864 . .	100	100	100	100
1874 . .	180	160	125	134
1884 . .	184	167	133	158

Professor Bodio's tables, comparing prices of wheat and maize with the average earnings of twenty-seven trades, and reducing these earnings to pounds of grain, may be summed up thus :—

Year	Day of Ten Hours			Days to Earn One Ton of Grain
	Wheat, Lbs.	Maize, Lbs.	Total, Lbs.	
1862 . . .	6.2	6.2	12.4	181
1863 . . .	7.5	7.5	15.0	148
1864 . . .	7.7	7.7	15.4	146
1865 . . .	8.0	8.0	16.0	140
1866 . . .	7.2	7.2	14.4	154
1867 . . .	6.2	6.2	12.4	181
1868 . . .	6.4	6.4	12.8	176
1869 . . .	8.6	8.6	17.2	130
1870 . . .	8.2	8.2	16.4	136
1871 . . .	7.0	7.0	14.0	158
1872 . . .	6.7	6.7	13.4	166
1873 . . .	6.8	6.8	13.6	163
1874 . . .	6.4	6.4	12.8	176
1875 . . .	9.6	9.6	19.2	116
1876 . . .	9.6	9.6	19.2	116
1877 . . .	8.2	8.2	16.4	136
1878 . . .	8.5	8.5	17.0	132
1879 . . .	8.8	8.8	17.6	127
1880 . . .	8.5	8.5	17.0	132
1881 . . .	10.5	10.5	21.0	106
1882 . . .	10.5	10.5	21.0	106
1883 . . .	12.1	12.1	24.2	93
1884 . . .	13.5	13.5	27.0	84
1885 . . .	13.7	13.7	27.4	82

UNITED STATES

Commissioner Carroll Wright, chief of the Washington Bureau of Statistics, has published a retrospect of wages, which may be condensed thus :—

Trade	Pence Daily					
	1770-1800	1801-20	1821-40	1841-60	1861-80	1881-83
Blacksmith . .	35	42	63	79	114	96
Bookbinder . .	...	...	46	72	96	75
Brewer . .	...	...	...	101	107	122
Butcher . .	17	31	46	...	101	68
Carpenter . .	30	55	74	85	121	120
Carriages . .	...	...	67	85	120	114
Clocks . .	...	56	65	80	115	...
Clothing . .	...	50	54	70	96	100
Cordage . .	...	...	58	46	76	...
Cottons . .	...	...	33	49	70	64
Glass . .	...	...	68	135	90	100
Harness . .	...	44	60	77	...	...
Hats . .	...	...	...	115	98	84
Jewellery . .	...	...	49	75	77	160
Labourers . .	24	43	42	46	74	66
Machinery . .	...	...	68	95	124	113
Masons . .	42	73	65	72	140	107
Metals . .	...	53	69	70	108	100
Millwrights . .	55	57	65	76	132	127
Nailers . .	24	50	56	90	120	92
Painters . .	...	62	64	83	116	98
Paper . .	...	54	35	50	85	85
Printers . .	...	57	66	73	109	107
Shipbuilders .	45	63	68	125	125	162
Shoemakers . .	37	...	48	70	88	94
Stonecutters . .	...	...	65	71	117	100
Tanners . .	...	50	65	70	104	93
Teachers . .	70	95	...	...	115	...
Teamsters . .	...	...	58	68	72	88
Turners . .	...	46	65	70	100	114
Woollens . .	...	...	53	44	66	62

Commissioner Carroll Wright compares the average wages in Massachusetts and Great Britain, from 1860 to 1883, in various trades as follows :—

Trade	Shillings Weekly		Trade	Shillings Weekly	
	Massachusetts	Great Britain		Massachusetts	Great Britain
Agricultural implements	43	37	Hats . . .	46	25
Boots . . .	48	21	Hosiery . .	28	20
Bricks . . .	36	17	Linen . . .	27	13
Building . .	62	32	Liquor . . .	53	80
Carpets . .	25	17	Machines . .	49	33
Carriages . .	57	35	Metals . .	47	37
Clothing . .	42	30	Printing . .	48	28
Cottons . .	27	24	Printworks .	36	23
Food . . .	41	16	Stone . . .	60	42
Furniture . .	46	34	Woollens . .	29	23
Glass . . .	51	36	Worsted . .	30	18

He compares the wages of men only, as follows :—

Trade	Shillings Weekly		Trade	Shillings Weekly	
	Massachusetts	Great Britain		Massachusetts	Great Britain
Agricultural implements	44	37	Hats . . .	59	34
Boots . . .	57	30	Hosiery . .	38	27
Bricks . . .	36	23	Linen . . .	36	28
Building . .	62	33	Liquor . .	54	80
Carpets . .	33	25	Machines . .	50	33
Carriages . .	58	35	Metals . .	51	44
Clothing . . .	72	37	Printing . .	64	38
Cottons . .	40	31	Printworks .	42	33
Food . . .	46	23	Stone . . .	60	42
Furniture . .	46	34	Woollens . .	32	31
Glass . . .	62	40	Worsteds . .	36	25

The wages of women and children in 1860–83 are compared thus :—

Shillings Wages Weekly

			Women		Children	
			Massachusetts	Great Britain	Massachusetts	Great Britain
Boots	.	.	36	15	19	11
Carpets	.	.	23	15	17	12
Carriages .	.	.	...	...	23	10
Clothing .	.	.	31	36	16	19
Cottons .	.	.	25	19	18	12
Food .	.	.	24	10	23	6
Furniture .	.	.	25	...	23	...
Hats .	.	.	31	14	19	10
Hosiery	.	.	25	16	23	9
Metals .	.	.	22	12	19	10
Printing .	.	.	26	12	19	10
Printworks	.	.	22	14	19	12
Woollens .	.	.	27	13	20	9
Linens .	.	.	21	11	16	6
Worsteds .	.	.	25	14	16	11

The average was for women 15½ shillings a week in Great Britain and 26 in the United States, and for children 10½ and 19 shillings respectively.

The following is a general average scale of wages at various dates :—

Wages Shillings Weekly

Trade	Massachusetts			Great Britain		
	1872	1878	1883	1872	1878	1883
Boots	61	50	48	23	19	18
Building . . .	64	52	62	27	23	30
Carriage . . .	70	58	57	27	30	20
Clothing . . .	51	40	42	24	15	26
Cottons . . .	33	32	27	22	20	19
Food	40	46	41	19	32	11
Glass	47	44	51	29	25	29
Linen	32	22	27	13	15	12
Machinery . .	56	42	48	28	20	29
Metals . . .	64	48	47	28	27	31
Printing . . .	53	56	47	28	27	23
Printworks . .	54	40	36	25	22	20
Shipbuilding .	66	49	84	28	25	33
Woollens . .	30	28	33	19	23	20

Atkinson gives the following wages for Massachusetts :—

				Shillings per Week				
				1840	1850	1860	1870	1880
Carder	.	.	.	18	21	21	28	31
Dresser	.	.	.	29	41	46	64	55
Dyer .	.	.	.	26	26	26	38	37
Labourer	.	.	.	12	18	21	26	25
Mechanic	.	.	.	25	31	38	38	40
Spinner	.	.	.	21	28	31	42	40
Weaver	.	.	.	18	21	18	27	31

The following table by Commissioner Wadlin, for Massachusetts in 1885, shows the percentage that wages stand for in cost of production in various articles :—

	Per Cent.			Per Cent.
Agricult. implements	38	Hosiery . . .		32
Arms . . .	30	Ink . . .		25
Boots . . .	25	Ivoryware . .		22
Bricks . . .	57	Leather . .		14
Brooms . . .	33	Linen . .		33
Building . . .	34	Liquor . .		13
Buttons . .	27	Lumber . .		25
Carpets . . .	21	Machines . .		47
Carriages . .	46	Metals . .		36
Cement . .	32	Paints . .		17
Chemicals . .	9	Paper . .		18
Clocks . .	77	Printing . .		39
Clothing . .	23	Rubber . .		25
Cordage . .	14	Salt . .		52
Cottons . .	30	Silks . .		30
Drugs . .	23	Stone . .		56
Dye-stuffs . .	21	Tobacco . .		35
Earthenware .	66	Toys . .		52
Electroplating .	28	Trunks . .		22
Furniture . .	37	Woollens . .		21
Glass . . .	62	Worsteds . .		21

Commissioner Wadlin's report gives in a classified form the wages of 248,000 operatives, which in English money show as follows :—

Weekly Shillings	Number			Ratio		
	Male	Female	Total	Male	Female	Total
Under 21	15,700	25,400	41,100	9.0	34.6	16.5
21–29 . .	20,300	28,200	48,500	11.6	38.3	19.5
29–37 . .	27,300	12,300	39,600	15.6	16.8	16.0
37–50 . .	43,600	5,500	49,100	25.0	7.5	19.8
Over 50 .	67,900	2,000	69,900	38.8	2.8	28.2
Total .	174,800	73,400	248,200	100.0	100.0	100.0

The following is a summary of the principal trades in 1875 and 1885 in Massachusetts; that is, the number of hands and the amount of wages (in gold) reduced to English money :—

	Hands		Wages Paid, £		Average, £ per Hand	
	1875	1885	1875	1885	1875	1885
Boots	48,000	64,900	3,700,000	5,600,000	77	86
Building	24,000	27,900	1,900,000	2,700,000	80	97
Clothing	13,700	18,300	1,000,000	1,200,000	73	66
Cottons	60,200	60,100	3,500,000	3,500,000	58	58
Food	4,700	11,500	500,000	1,000,000	106	86
Furniture	6,700	8,200	650,000	750,000	97	91
Leather	6,600	9,200	700,000	900,000	105	98
Machines	9,600	14,600	1,300,000	1,500,000	135	103
Metals	17,600	24,200	2,200,000	2,400,000	125	99
Paper	6,500	8,600	500,000	650,000	77	74
Printing	5,500	9,900	550,000	950,000	100	96
Printworks	3,200	8,600	40,000	600,000	125	70
Rubber	1,100	6,500	80,000	450,000	73	70
Woollens	19,000	19,000	1,200,000	1,200,000	63	63
Worsteds	1,500	8,000	100,000	500,000	67	62
Various	69,140	79,830	5,480,000	6,700,000	79	84
Total	297,040	379,330	23,400,000	30,600,000	80	81

The following table shows the average earnings per hour, and the number of hours of work, in the period 1860-83 :—

Trade	Pence per Hour		Hours Weekly	
	Massa-chusetts	Great Britain	Massa-chusetts	Great Britain
Agricultural imple-ments . .	8.5	8.2	60	54
Boots . . .	9.8	4.2	60	52
Bricks . . .	6.7	...	64	...
Building . . .	12.5	7.0	60	52
Carriages . . .	11.5	4.5	60	54
Clothing . . .	8.6	6.3	58	54
Cottons . . .	5.4	4.2	60	56
Food . . .	8.2	2.4	60	56
Furniture . . .	9.3	7.6	60	52
Glass . . .	10.2	...	60	...
Hats . . .	9.2	5.1	60	54
Hosiery . . .	5.4	4.3	60	54
Linen . . .	5.4	2.6	60	54
Machinery . . .	9.8	6.6	60	52
Metals . . .	9.5	6.9	60	54
Printing . . .	9.8	5.1	58	54
Printworks . . .	7.2	4.6	60	54
Woollens . . .	5.8	4.3	60	56
Worsteds . . .	6.1	3.2	60	56

The last four Census reports, down to 1880, give the following returns as to amount of wages paid (in gold) in all kinds of manufacturing industries :—

	Million Dollars				Per Operative, in £ Sterling			
	1850	1860	1870	1880	1850	1860	1870	1880
Maine	7	8	14	14	51	47	52	53
New Hampshire .	6	8	14	15	46	50	60	65
Vermont	2	3	6	5	52	66	61	58
Rhode Island . .	5	9	19	21	50	57	66	67
Connecticut . . .	12	19	39	44	51	60	75	78
Massachusetts . .	42	57	118	128	49	55	76	72
New England .	74	104	210	227	49	55	72	70
New York . . .	49	65	142	190	52	59	72	79
New Jersey . . .	9	16	33	46	49	59	80	73
Pennsylvania . .	37	60	128	134	52	56	74	70
Delaware	1	2	4	4	50	60	70	62
Maryland	7	7	13	19	50	52	58	54
Middle . . .	103	150	320	402	51	58	72	76

	Million Dollars				Per Operative, in £ Sterling			
	1850	1860	1870	1880	1850	1860	1870	1880
Virginia	5	9	9	11	35	50	49	41
Georgia	2	3	5	5	44	55	52	42
Kentucky	5	6	9	12	46	57	53	60
Tennessee . . .	2	3	5	5	34	50	47	47
Louisiana	2	4	5	4	56	78	36	60
Various	4	9	12	15	44	52	48	50
South	20	34	45	52	50	57	45	47
Ohio	13	22	49	62	51	59	65	69
Illinois	3	8	31	57	50	53	69	75
Michigan	3	7	21	29	65	60	60	77
Wisconsin	2	4	14	19	65	55	56	67
Missouri	5	7	31	24	64	70	88	70
Indiana	4	6	18	22	58	60	57	70
Iowa	...	2	7	10	...	65	55	66
Minnesota . . .	...	...	4	9	...	...	65	70
Various	8	38	35	38	58	60	63	70
West	38	94	210	270	58	60	64	70
The Union . .	235	382	785	951	51	58	69	73

We learn from the preceding table that the average wages for operatives have been increasing every decade. Three operatives in 1880 earned more than four did in 1850 : they also produced more (see p. 379). The ratio which wages bore to the value of goods manufactured was :—

States	1850	1860	1870	1880	Average per Cent.
New England . .	26	22	21	21	22
Middle . . .	22	19	18	18	19
South . . .	21	18	16	16	18
West . . .	21	17	17	16	18
Union . . .	24	19	18	18	20

During the gold fever at San Francisco, daily wages were as follows :—

	s.	d.		s.	d.
Bricklayer . .	41	8	Tailor . . .	16	8
Stonecutter . .	41	8	Hatter . .	29	2
Plasterer . .	37	6	Watchmaker .	33	4
Glazier . .	25	0	Carpenter . .	41	0

Mr. Young published in 1870 the following scale of wages current in various States of the Union :—

	Maine	Massachusetts	New York	Pennsylvania	Texas	Louisiana	Illinois	California
	Wages Reduced to English Money, Shillings Weekly							
Blacksmith . . .	68	72	68	60	70	81	68	100
Bricklayer . . .	81	94	88	75	81	98	87	110
Cabinetmaker . .	66	68	68	50	68	68	65	95
Carpenter . . .	60	81	74	50	76	94	68	100
Cooper	63	78	65	63	75	75	63	93
Painter	67	70	75	63	75	82	68	100
Plasterer . . .	81	92	90	78	80	94	80	114
Shoemaker . . .	61	65	60	63	64	70	60	95
Stonecutter . . .	84	98	94	81	105	100	87	110
Tailor	66	61	62	50	64	70	60	93
Tanner	66	68	68	50	68	75	65	98
Tinsmith	63	65	68	52	72	72	66	99
Wheelwright . . .	68	75	72	55	70	90	75	100
Farm labourer . .	38	40	42	41	32	42	40	58

	New England	Middle	Southern	Western	General Average
	Wages Reduced to English Money, Shillings Weekly				
Blacksmith . . .	70	60	67	72	68
Bricklayer . . .	87	83	76	91	85
Cabinetmaker . .	72	61	65	69	67
Carpenter . . .	70	56	74	75	68
Cooper . . .	71	63	64	67	66
Painter . . .	72	66	70	74	71
Plasterer . . .	85	79	79	89	83
Shoemaker . . .	61	55	60	64	60
Stone-cutter . .	88	85	80	87	86
Tailor . . .	65	58	61	65	62
Tanner . . .	68	59	65	68	65
Tinsmith . . .	69	61	65	68	66
Wheelwright . .	72	63	72	75	71
Farm labourer . .	42	37	29	41	37

Note.—The above wages were in paper money at 13 per cent. discount as compared with gold ; thus 80s. were in reality only 70s.

WARS

The wars of ninety years down to 1880 involved an expenditure of 3047 millions sterling, besides the loss of 4,470,000 lives, viz. :—

Date	Belligerents	Expenditure, Million £	Loss in Men
1793–1815	England and France .	1,250	1,900,000
1828 . .	Russia and Turkey . .	20	120,000
1830 40 .	Spain and Portugal (civil)	50	160,000
1830 47 .	France and Algeria . .	38	110,000
1848 . .	Europe (civil) . . .	10	60,000
1854–56 .	England, France, Russia	305	485,000
1859 . .	France and Austria . .	45	63,000
1863–65 .	United States (civil) .	740	656,000
1866 . .	Prussia and Austria .	20	51,000
1866 . .	France and Mexico .	15	65,000
1864–70 .	Brazil and Paraguay .	48	330,000
1870–71 .	France and Germany .	316	290,000
1876–77 .	Russia and Turkey . .	190	180,000
		3,047	4,470,000

Summary

Period	Expenditure, Million £	Loss of Life	Per Annum	
			Million £	Loss of Life
1790–1820	1,250	1,900,000	42	63,000
1821–1850	118	450,000	4	15,000
1851–1860	350	548,000	35	55,000
1861–1880	1,329	1,572,000	66	79,000
	3,047	4,470,000		

British Wars.—In less than 300 years, Great Britain has expended 1359 millions sterling in war, viz. :—

Date	Locality	Expenditure, Million £	Commander
1599 . .	Ireland	4	Essex
1642–48 .	England and Ireland	57	Cromwell
1688–97 .	Ireland and Holland	33	William III.
1702–63 .	Germany, Spain, &c.	182	Marlborough,&c,
1759 . .	Canada . . .	62	Wolfe
1775–80 .	United States . .	121	Cornwallis
1793–1815	France, &c. . .	831	Wellington
1854–56 .	Crimea	69	Raglan
		1,359	

In the Crimean War, 97,860 men took the field, of whom 2755 were killed in action ; 18,280 were wounded, and of these 1847 died in hospital, and 17,580 died of disease ; total deaths 22,182, or 22½ per cent. of the total strength.

French Wars.—In 218 years France spent 993 millions sterling in war, viz. :—

Date	Reign	Locality	Expenditure, Million £	Commander
1654–1713	Louis XIV. .	Flanders,&c.	154	Turenne,&c.
1733–63	Louis XV. .	,,	82	Saxe
1778–83	Louis XVI. .	U. States .	22	Lafayette
1791–1815	Napoleon . .	Europe, &c.	255	Bonaparte
1830–47	Louis Philippe	Algeria . .	38	Bugeaud,&c.
1854–56	Napoleon III.	Crimea . .	93	Pellissier
1859	,,	Italy . . .	18	MacMahon
1866	,,	Mexico . .	15	Bazaine
1870–71	,,	Rhine . .	316	Lebeuf
			993	

In the Crimean war 309,400 men took the field, of whom 8490 were killed in action ; 39,870 were wounded, and of these 11,750 died in hospital, and 75,375 died of disease ; total deaths 95,615, or 31 per cent. of total strength. It is remarkable that 29 per cent. of the wounded died, and 30 per cent. of men admitted to hospital for disease, whereas the British lost only 10 per cent. of wounded and 12 per cent. of men admitted for disease. At the same time only 71 per cent. of the French army were admitted to hospital for disease, namely 225,000 ; whereas 147 per cent. of the British were so admitted, that is, the whole army nearly twice over during the campaign, such admission reaching 144,400, or 46,000 more than the total strength. The casualties of the

French compare with those of the other belligerents in the Crimea thus :—

	English	French	Turk	Russian	Total
Took field . .	98,100	309,400	165,000	888,000	1,460,500
Killed in battle	2,755	8,490	10,100	30,600	51,945
Died of wounds	1,847	11,750	10,800	42,000	66,397
Died of sickness	17,580	75,375	24,500	374,000	491,455
Total loss .	22,182	95,615	45,400	446,600	609,797

Shots Fired

By	Millions	Killed	Shots to Kill
English . .	15	21,000 Russians .	700
French . .	29	51,000 ,, .	590
Russians . .	45	48,000 Allies . ,.	910
Total .	89	120,000 men . .	740

In the Franco-Italian war 128,000 French took the field, of whom 2536 were killed in action ; 17,054 were wounded, and of these 2962 died in hospital, besides 2040 who died of disease ; total deaths 7538, or 6 per cent.

In the Mexican war of 1862–66 there were 35,000 French landed in Mexico, of whom 1180 were killed in action ; 2559 were wounded, and of these 549 died ; deaths from disease were 4925, making a total of 6654, or 19 per cent. of total strength.

In the Franco-German war of 1870–71, 710,000 French took the field, and of these no fewer than 138,870 were killed in action or died in hospital, including 2977 officers. The death-roll of the French was, of men killed in action or died in hospital, as follows :—

In France	.	.	.	.	119,929
In Germany	.	.	.	.	17,240
In Switzerland	.	.	.	.	1,701
		Total	.	.	138,870

This includes 45,000 deaths from disease, but it is believed that many not recorded died of wounds, having gone to their homes. Deaths were at least 20 per cent.

German Wars.—The campaign of Sadowa, between Prussia and Austria, in 1866, showed as follows :—

	Prussians	Austrians	Total
Took field . . .	309,000	330,000	639,000
Killed	2,650	11,100	13,750
Wounded . . .	14,820	29,310	44,130
Missing . . .	3,304	43,750	47,054
Hors-de-combat .	20,774	84,160	104,934
Returned home .	288,226	245,840	534,066

The Prussians had one officer killed or wounded for 21 men, the Austrians one for 18 men.

In the Franco-German war of 1870–71 the casualties were as shown in the following table :—

	French	Germans	Total
Took field . . .	420,000	780,000	1,200,000
Reinforced . .	290,000	223,000	513,000
Total . .	710,000	1,003,000	1,713,000
Killed	41,000	19,782	60,782
Died of wounds .	36,000	10,710	46,710
Died of sickness .	45,000	14,259	59,259
Disabled . . .	116,000	89,000	205,000
Prisoners . . .	446,000	...	446,000
Hors-de-combat .	684,000	133,751	817,751

Killed and Wounded

	French	Germans	Total
Woerth . . .	32,000	11,000	43,000
Mars-le-Tour . .	26,000	16,200	42,200
Gravelotte . . .	28,500	20,100	48,600
Paris	30,000	13,300	43,300
Orleans, &c. . .	76,500	57,400	133,900
Total . .	193,000	118,000	311,000

The number of Germans killed includes 4010 missing, who are supposed to have been slain in action. The hospital records of the Germans showed that 127,870 wounded of their army were admitted, but only 10,710 died, say 8½ per cent. Deaths from disease included 6965 of typhoid fever. The minimum force in the field was 781,000 in August 1870, the maximum 937,000 in February 1871. The death-rate during the whole campaign in the different arms was :—

	Per 1000		Per 1000
Engineers . . .	17.6	Staff . . .	105.0
Cavalry . . .	27.1	Captains . . .	87.0
Artillery . . .	27.2	All officers . .	76.0
Infantry . . .	52.8	Officers and men .	45.9

The Germans fired off 30 million musket cartridges and 363,000 rounds of artillery, with which they killed or mortally wounded 77,000 French, being 400 shots to kill, as compared with 740 in the Crimean war (q.v.). See *Battles*.

Russian Wars.—The campaigns of the last sixty years cost 335 millions sterling and 664,000 men, viz. :—

Date	Reign	Locality	Expenditure, Million £	Loss in Men
1828 .	Nicholas . .	Balkans .	15	86,000
1854–56	Nicholas . .	Crimea .	142	447,000
1876–77	Alexander II.	Turkey .	133	110,000
1878–80	Alexander II.	Khiva,&c.	45	21,000
52 years	...	...	335	664,000

American Wars.—According to Stedman, an officer under Lord Cornwallis, the strength of the British and American armies in the War of Independence was :—

Year				British	Americans
1776	.	.	.	27,700	3,300
1777	.	.	.	30,000	8,000
1781	.	.	.	7,000	32,600

The British army consisted largely of Hessian and other soldiers bought in Germany by George III., and for whom the British Government paid the following sums to the German princes :—

	Men	Sum, £	£ per Man	Perished in the War
Hesse . . .	16,992	2,600,000	153	6,500
Brunswick . .	5,723	780,000	137	3,015
Anspach, &c. .	6,451	1,747,000	275	2,328
Total . .	29,166	5,127,000	175	11,843

During the five years that the war lasted 288,200 Americans fought for their country, the States being represented by the following numbers :—

	Men		Men
Massachusetts . .	83,000	New Jersey . .	17,000
Connecticut . .	40,000	New Hampshire .	15,000
Pennsylvania . .	33,000	Rhode Island . .	10,000
Virginia	32,000	North Carolina .	7,300
New York . . .	21,000	South Carolina .	6,400
Maryland . . .	18,000	Georgia, &c. . .	5,500

The American army, after the surrender of Lord Cornwallis, was found to number thus :—

49 regiments of foot	.	.	.	.	28,224
4	,,	horse	.	.	1,536
4	,,	artillery	.	.	2,340
1	,,	pioneers	.	.	480
		Total	.	.	32,580

The total expenses of the war were 135 million dollars, say 28 millions sterling. In the second war with England (1812–15), the American army at one time counted 32,000 men under the colours. In the war with Mexico (1845), the Americans had 90,100 men, of whom 7780 died, including 6060 of disease, and the rest killed in action or who died of wounds received.

An official statement of the war for the Union in 1863–65 was as follows :—

Northern Army

	Officers	White Men	Coloured	Total	Ratio
Took field . .	84,000	2,073,000	179,000	2,336,000	100
Killed . . .	3,930	38,790	1,520	44,240	1.9
Died of wounds	2,070	30,890	1,046	34,006	1.5
,, sickness	1,720	121,110	26,200	149,030	6.4
Missing . .	1,600	60,910	4,614	67,124	2.9
Returned home	74,680	1,821,300	145,620	2,041,600	87.3

Kolb gives the following summary :—

	Killed	Wounded	Prisoners
Northerns . . .	43,573	132,265	87,481
Southerns . . .	26,720	101,843	78,731
Total . .	70,293	234,108	166,212

According to another account the Northern army lost :—

	Killed	Died of Sickness	Total
Officers	5,221	2,321	7,542
Men	90,868	182,329	273,197
Total . .	96,089	184,650	280,739

The Ordnance department served out 7892 cannon, 4,022,000 rifles, 2,360,000 equipments for infantry and cavalry, 12,000 tons powder, 42,000 tons lead, and 1022 million rounds of cartridge.

WATER

The weight of alluvial deposits to 1000 gallons of water is as follows :—

	Lbs.		Lbs.		Lbs.
Loch Katrine	¼	Danube . .	2	Wear . . .	16
Windermere .	⅓	Garonne . .	2	Ganges . .	22
Severn . . .	1	Rhine . .	2	Cheltenham	134
Avon . . .	1	Mersey . .	3	Harrogate .	157
Tunbridge .	1½	Thames . .	4	Oxus . . .	250
Spree . . .	1½	Mississippi .	6	Seidlitz . .	321
Geneva . .	2	Spa	14	Atlantic . .	448

A ton of water contains 224 gallons or 36 cubic feet, but sea-water is 2 per cent. heavier. An inch of rainfall gives 14,500,000 gallons of water to the square mile, or 22,500 gallons to the acre. Snow requires 8 cubic feet to produce one cubic foot of water. Current requires a minimum fall of one inch in 10 miles. The water-power of Niagara is 10,000,000 cubic feet per minute, equal to 3,000,000 horse-power. In 1880 the United States had 51,000 water-wheels with an aggregate of 1,500,000 horse-power.

Water supply has always been a matter of the highest importance. Rome, in the time of the Cæsars, had nine aqueducts, measuring 249 miles in the aggregate : they poured into the city 330 million gallons daily, or 160 gallons per inhabitant. The great aqueduct of Peru, built by the Incas, was 360 miles long. Among modern works the most famous are :—

Name	Miles	Million Gallons Daily	Cost of Work, £
Croton (New York) .	41	88	1,800,000
Madrid . . .	47	40	2,300,000
Marseilles . . .	51	60	450,000
Glasgow . . .	34	50	1,550,000
Washington . .	16	90	...

The supply of various cities is shown as follows :—

	Gallons Daily	Gallons per Inhabitant
Ancient Rome . . .	330,000,000	160
Modern Rome . . .	200,000,000	670
London . . .	145,000,000	38
Paris . . .	88,000,000	39
New York . . .	88,000,000	70
Chicago . . .	60,000,000	120
Sydney . . .	50,000,000	120
Glasgow . . .	26,000,000	48
St. Louis . . .	25,000,000	70
Marseilles . . .	18,000,000	50
Buffalo . . .	17,000,000	120
Manchester . . .	11,000,000	20
Liverpool . . .	11,000,000	20
Boston . . .	10,000,000	27
San Francisco . . .	10,000,000	42
Newark . . .	10,000,000	80
Edinburgh . . .	10,000,000	33
Dublin . . .	7,000,000	22
Melbourne . . .	7,000,000	25
Hamburg . . .	5,000,000	12

Artesian wells are of great antiquity ; they were known at Thebes 2000 years before the Christian era. In modern times that of Grenelle, near Paris, is the most famous, having taken eight years in boring, 1833–41 ; it gives 700,000 gallons daily, the water rising 32 feet above the surface, with a temperature of 81¼° Fahr.

Well	Depth, Feet	Diameter, Inches	Gallons Water per Minute	Cost of Well, £
Grenelle . . .	1,798	3.74	484	14,550
Passy	1,923	27.60	1,980	40,000
Kissingen . . .	1,880	4.00	600	7,000
St. Louis, U.S. .	2,200	...	...	2,000
Chicago . . .	700	...	820	...
Calais	1,138	...	...	3,560
Donchery . . .	1,215	...	...	3,045
Trafalgar Square	393	...	500	...
Lille	592	...	...	320
Algeria	177	...	1,130	...
Elbeuf	492	2.95	66	...
St. Denis . . .	262	2.28	28	...

There are 78 of these wells in England, varying from 100 to 1000 feet. Several have been sunk in China more than 1000 feet, at a cost of only seven shillings per foot.

The water companies of London in 1880 showed : capital, £12,463,000 ; receipts, £1,460,000 ; expenses, £740,000 ; net profit, £720,000.

The water-supply of Paris in 1884 was as follows, daily :—

Aqueduct .	.	.	.	.	55,000,000
Seine and wells .	.	.	.	.	33,000,000
		Total	.	.	88,000,000

WEALTH OF NATIONS.

Millions £.

13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000

Roumania   Canada   Belgium   Spain   Austria   Germany   U. Kingdom   U. States   France   Russia   Italy   Australia   Holland   Sweden   Argentina

Ballantyne, Hanson & Co Edinburgh & London.
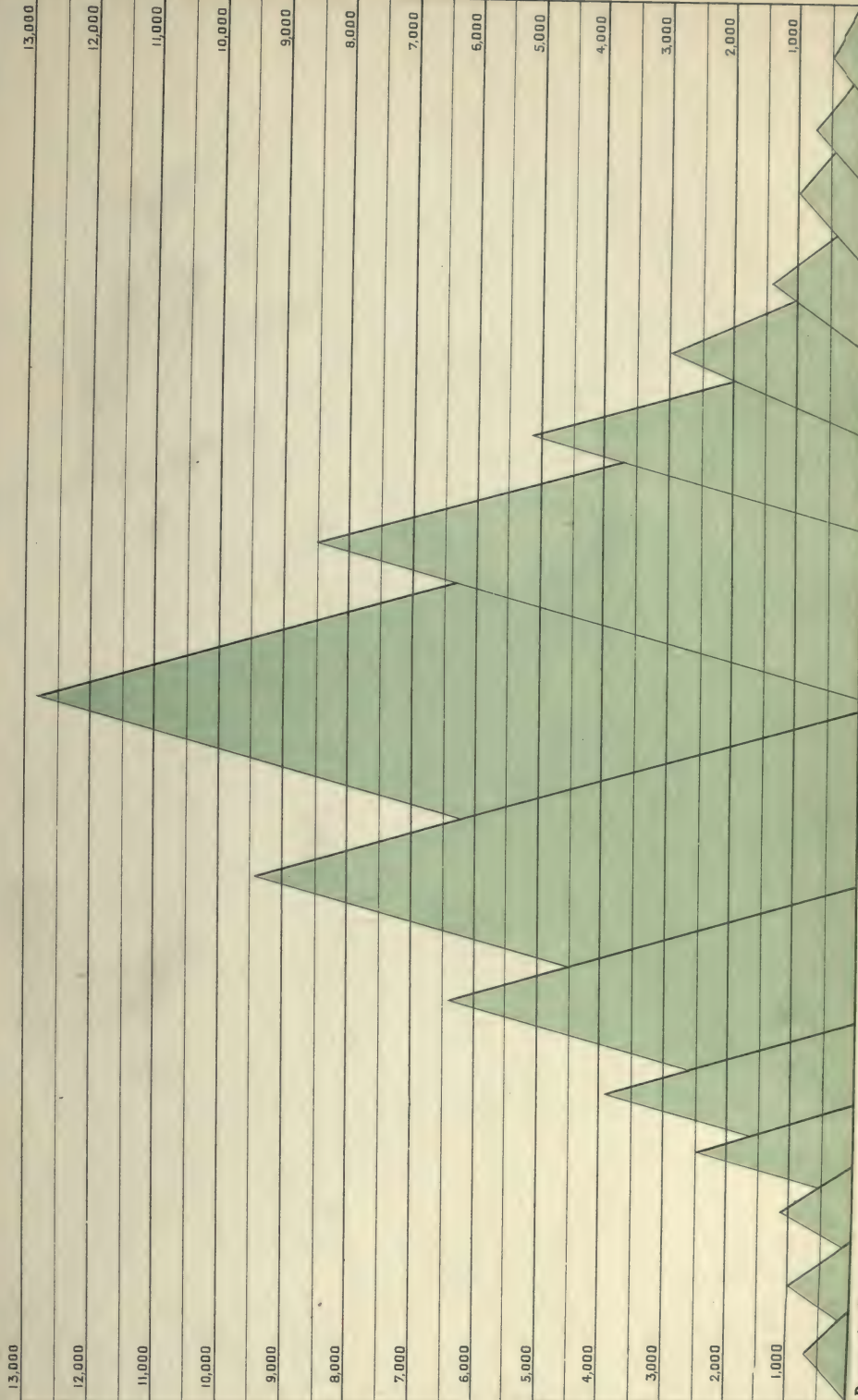
WEALTH

The following conspectus shows approximately the wealth of nations in 1888. The United States occupies the first place. As regards the amount of wealth per inhabitant the United Kingdom stands second only to Australia ; and when we consider that most of Australia is mortgaged to British capitalists we may say that in reality the United Kingdom has most wealth per head. Excluding Ireland (where the ratio is only £124 per head), the ratio for Great Britain is £263 per inhabitant. It is well to observe that the subjoined table may serve for comparison, but cannot be considered mathematically correct :—

	Lands	Cattle, &c.	Houses	Furniture	Railways	Ships	Merchandise	Bullion	Sundries	Total	£ per Inhab.
United Kingdom .	1,544	414	2,424	1,212	865	134	343	124	2,340	9,400	247
France . . .	2,688	541	1,704	852	570	15	155	328	1,745	8,598	224
Germany . .	1,815	492	1,232	616	495	16	184	167	1,420	6,437	140
Russia . . .	1,507	853	701	350	314	7	59	53	1,245	5,089	55
Austria . . .	1,371	386	501	250	307	3	46	27	964	3,855	99
Italy . . .	1,182	223	394	197	138	8	47	33	741	2,963	100
Spain . . .	984	215	340	170	94	11	30	43	629	2,516	148
Portugal . .	132	29	70	35	19	1	9	11	102	408	87
Sweden . . .	240	66	80	40	28	5	15	4	159	637	125
Norway . .	100	27	17	9	7	12	8	2	61	243	122
Denmark . .	217	57	40	20	10	4	13	2	41	404	230
Holland . .	314	66	132	66	35	4	100	18	245	980	216
Belgium . .	377	68	106	53	71	2	56	22	252	1,007	167
Switzerland . .	220	24	40	20	37	...	30	6	117	494	165
Roumania . .	254	69	50	25	29	...	12	6	148	593	110
Servia . . .	94	28	20	10	6	...	2	3	54	217	108
Greece . . .	138	42	20	10	6	2	4	3	75	300	162
Bulgaria . .	90	20	20	10	8	...	3	3	51	205	70
Turkey . . .	280	57	40	20	16	3	17	12	148	593	120
Europe . . .	13,547	3,677	7,931	3,965	3,055	227	1,133	867	10,537	44,939	130
United States .	2,560	1,136	2,850	1,425	1,949	60	160	228	2,456	12,824	210
Canada . . .	282	80	127	64	151	6	21	4	245	980	196
Argentina . .	111	66	95	48	48	...	13	1	127	509	125
Australia . .	533	104	239	120	94	1	65	24	193	1,373	370
Cape Colony .	25	17	17	9	18	...	8	7	34	135	130
Total .	17,058	5,080	11,259	5,631	5,315	294	1,400	1,131	13,592	60,760	144

UNITED KINGDOM

The following table shows the estimates made at various dates :—

Date	Millions £	Comprising		Authority
1660	250	England and Wales		Petty
1703	490	,,	,,	Davenant
1774	1,100	,,	,,	Young
1800	1,740	Great Britain		Beeke, Eden
1812	2,190	United Kingdom		Colquhoun
1822	2,600	,,	,,	Lord Liverpool
1833	3,750	,,	,,	Pablo Pebrer
1840	4,100	,,	,,	Porter
1865	6,113	,,	,,	Giffen
1875	8,548	,,	,,	,,
1885	10,037	,,	,,	,,
1882	8,720	,,	,,	Mulhall
1888	9,400	,,	,,	,,

Regarding Petty's valuation, we only know that land constituted 57 per cent. of the total, the selling price being then under £5 an acre. At the time of Davenant it had risen to £9, and of Young to £18. Towards the close of the 18th century Beeke, Pitt, and Eden made valuations of Great Britain, all previous ones being of England without Scotland. Dr. Beeke valued the real estate at 920 millions, viz. :—

£

Land in England . . . 600,000,000
Land in Scotland . . . 120,000,000
Houses in Great Britain . . 200,000,000

Real estate . . 920,000,000

The most elaborate work of this kind was Colquhoun's in 1812, the first valuation of the United Kingdom : he made the total **2745** millions in the currency of the period, equal in gold to 2190 millions sterling. His

table of values evidently formed the basis on which Lord Liverpool and Pablo Pebrer afterwards constructed theirs. Pebrer's estimate of the value of the United Kingdom in 1833 was as follows :—

Million £ Sterling				
	England	Scotland	Ireland	United Kingdom
Lands . . .	1,000	200	400	1,600
Cattle . . .	150	26	66	242
Grain . . .	40	7	13	60
Houses . . .	400	40	93	533
Furniture . .	173	20	53	246
Public buildings .	42	4	11	57
Mines and canals .	151	10	5	166
Merchandise . .	133	21	32	186
Jewellery and clothes	66	7	13	86
Sundries . .	316	38	64	418
Total . .	2,471	373	750	3,594

He furthermore estimated the earnings and capital of the United Kingdom and Colonies thus :—

	Earnings, £	Capital, Million £	Population	£ per Inhab.	
				Capital	Earnings
U. Kingdom	514,800,000	3,594	24,300,000	149	21.0
Canada . .	17,600,000	62	910,000	68	19.4
West Indies	22,500,000	89	730,000	121	31.0
Mauritius .	1,200,000	13	100,000	130	12.0
South Africa	1,100,000	6	55,000	109	20.0
Australia .	500,000	3	40,000	75	12.5
Total .	557,700,000	3,767	26,135,000	144	21.5

Porter's estimate in 1840 in a manner confirmed all those previously made, showing a progressive increase of wealth, and relied, moreover, on the legacy and succession returns. Dr. Giffen's tables for 1865-75-85 are *sui generis*, laying down a new method of valuation, namely, capitalising the various sources of income in the income-tax returns. His table for 1885 may be condensed thus :—

	Income, £	Capital Value, Mill. £	Years' Purchase
Lands . . .	65,090,000	1,691	28
Houses . . .	128,500,000	1,927	15
Farmers' profits .	65,223,000	522	8
Foreign loans . .	21,096,000	527	25
British railways . .	33,270,000	932	28
Foreign railways .	3,808,000	76	20
Trades and professions	38,096,000	541	15
Furniture, &c. . .	...	960	...
Various companies .	34,789,000	696	20
Mines and quarries .	8,536,000	34	4
Gasworks . .	5,026,000	126	25
Waterworks . .	3,260,000	65	20
Ironworks . . .	2,265,000	9	4
Canals . . .	3,546,000	71	20
Investments abroad .	50,000,000	500	10
Public property . .	...	500	...
Sundries . .	91,517,000	860	...
Total .	554,022,000	10,037	...

If there be a weak point in Dr. Giffen's method, it is the capitalising of farmers' profits and income arising from trades and professions, together 1063 millions sterling ; many people will question whether these items should be counted at all.

The following table shows approximately the principal items of national wealth at various dates :—

	Million £			
	1812	1840	1860	1888
Lands . . .	1,380	1,680	1,748	1,544
Cattle, &c. . .	240	280	350	414
Houses . . .	255	740	1,100	2,424
Railways . .	...	21	348	865
Shipping . .	15	23	44	134
Merchandise . .	50	70	190	343
Furniture . .	130	370	580	1,212
Bullion . .	23	61	105	124
Foreign loans . .	105	330	420	1,460
Roads, works, &c. .	286	525	675	880
Total . .	2,190	4,100	5,560	9,400

Land is still one of the great features of wealth. For the sake of comparison, we may capitalise the rental at thirty years' purchase since the middle of the 18th century. As regards 1888, it is admitted that the rental valuation is 20 per cent. more than the landlords actually receive, and hence in the following table the value for 1888 is computed accordingly :—

Year	Value of Land, Million £ Sterling			
	England	Scotland	Ireland	Total
1750 . . .	381	24	93	498
1780 . . .	507	36	159	702
1814 . . .	1,112	145	213	1,470
1843 . . .	1,264	167	246	1,677
1850 . . .	1,286	167	252	1,704
1860 . . .	1,289	189	270	1,748
1868 . . .	1,433	216	276	1,925
1877 . . .	1,548	231	298	2,077
1888 . . .	1,125	171	248	1,544

The value of land in the three kingdoms rose 40 per cent. during the wars in Canada and United States, but the wars against Bonaparte caused a still greater rise owing to the enormous prices paid for grain. The upward movement continued until 1877, from which date there has been a steady, continuous decline.

Houses in the early part of the present century were little over 10 per cent. of the wealth of the nation ; at present they exceed 25 per cent. of the total. I have capitalised the rental at 18 years, while Dr. Giffen thinks 15 years sufficient.

The increase of house property in the United Kingdom in a single lifetime, say 67 years, has been over 2000 millions sterling, viz. :—

Year	Number of Houses	Rental, £	Value, Million £	Annual Increase	
				Houses	Value, Million £
1821	3,572,000	20,300,000	366	...	...
1841	4,775,000	41,500,000	747	60,000	19
1861	5,131,000	61,200,000	1,102	18,000	18
1887	7,100,000	134,700,000	2,424	77,000	56

It must not, however, be supposed that 2000 millions sterling have been expended on new houses since 1821 : the value of sites has risen very remarkably, which is included in the above table. The actual house property of the United Kingdom may be distinguished approximately thus :—

	Number	Value, Million £	£ per House
Built before 1840 . .	4,400,000	1,570	357
,, since 1840 . .	2,700,000	854	316
Total . . .	7,100,000	2,424	341

There is no country in the world in which the value of house property to population is so high as in England, nor any (except Russia) where it is lower than in Ireland. The houses and values in the three kingdoms stand thus :—

	Houses	Value, £	£ per House
England . .	5,206,000	2,131,000,000	408
Scotland . .	980,000	230,000,000	235
Ireland . . .	914,000	63,000,000	69
U. Kingdom .	7,100,000	2,424,000,000	341

The growth of house property in each of the three kingdoms has been already set forth in detail under the title *Houses*.

Railways constitute an entirely new element of wealth that has sprung up in the last fifty years : they represent at present a value far in excess of the National Debt.

Year	Miles	Cost, £	Cost per Mile
1840 . . .	650	21,000,000	32,000
1860 . . .	10,430	348,100,000	33,400
1888 . . .	19,810	864,700,000	43,700

The increase of railway capital in twenty years, down to 1860, was £16,400,000 per annum, and £18,400,000 in the years from 1860 to 1888. Shipping has grown about nine-fold in value since Colquhoun's estimate in 1812, and at present represents a sum equal to the collective values of all the other merchant navies of the world ; for this item, be it understood, does not include war-vessels, the latter being counted with dockyards, arsenals, and other public property.

The shipping of our merchant navy, including machinery and fittings, represents the following amount :—

	Tons	Value, £	£ per Ton
Sailing . . .	3,115,000	24,920,000	8
Steam . . .	4,350,000	108,750,000	25
Total . .	7,465,000	133,670,000	...

Merchandise in the above summary is put down at a sum equal to six months' imports and exports at the several dates.

Furniture is, at auctioneers' estimates, taken at 50 per cent. of the value of house property. Bullion and foreign loans have been estimated at various dates more or less at the figures stated. Foreign investments in 1888 were approximately as follows :—

	£
Colonial loans and railways . .	430,000,000
Australian mortgages . . .	330,000,000
Foreign loans and railways . .	700,000,000
Total . . .	1,460,000,000

Public properties in the United Kingdom were approximately thus :—

	£
180,000 miles of roads . . .	90,000,000
6000 miles of streets . . .	60,000,000
Canals, docks, and royal navy . .	115,000,000
Drains, waterworks, telegraphs .	178,000,000
Public buildings	240,000,000
Parks, crown forests, arsenals, &c. .	197,000,000
Total . . .	880,000,000

The total wealth of the three kingdoms in 1888 was approximately as follows :—

	Million £ Sterling			
	England	Scotland	Ireland	Total
Lands . . .	1,125	171	248	1,544
Houses . . .	2,131	230	63	2,424
Cattle, &c. . .	267	53	94	414
Railways . . .	714	114	37	865
Furniture . . .	1,066	115	31	1,212
Other items * .	2,511	265	165	2,941
Total . .	7,814	948	638	9,400

The distribution of wealth in the United Kingdom may be approximately arrived at if we multiply the number of estates that paid legacy-duty by fifty, which corresponds more or less to the number of inhabitants. The official returns showing the amount of property changing hands under probate or legacy in the years 1885–89 give the averages thus per annum :—

Estates	Number	Amount, £	Average, £
Over £500,000 . .	11	9,400,000	855,000
£100,000–£500,000 .	147	27,800,000	190,000
£10,000–£100,000 .	2,279	60,400,000	26,500
£1000–£10,000 . .	11,153	35,500,000	3,200
Under £1000 . .	30,660	10,100,000	330
Total . .	44,250	143,200,000	3,250

The above is exclusive of estates paying succession-duty, which amounted in the same years to an average of £44,800,000, equal to 31 per cent. of the former. In order, therefore, to estimate the total value of property

* As the amount under this heading that would correspond to each country cannot be ascertained, the sum is distributed *pro rata* according to the income-tax assessments of the three kingdoms.

changing hands, we may be permitted to add 31 per cent. to the number of each class as given above, and likewise to the amount. The account will then stand thus :—

Estates	Amount, £	Average, £
Over £500,000 . .	12,000,000	855,000
£100,000–£500,000 . .	36,700,000	190,000
£10,000–£100,000 . .	78,500,000	26,500
£1000–£10,000 . .	46,800,000	3,200
Under £1000 . .	14,000,000	340
Total . .	188,000,000	3,250

If we follow Porter's method, and multiply the above number of estates by fifty, as the number of living persons is about fifty times the annual number of deaths, we find the wealth of the kingdom is held as in the subjoined table. Moreover, as each estate proved may be taken to stand for a household averaging 5½ persons, we must distribute the amount in households, and not per individual :—

Class	Households	Average, £	Aggregate, Millions £
Millionaires . .	700	855,000	599
Very rich . . .	9,650	190,000	1,834
Rich	148,250	26,500	3,928
Middle	739,500	3,200	2,336
Struggling . .	2,008,000	340	680
Poor	3,916,900	...	...
Total . .	6,814,000	...	9,377

The above total is almost equal to the amount given in the conspectus as the wealth of the kingdom, which included 880 millions for public works, &c. It is, however, apparent that a portion (probably 10 per cent.) of the wealth on which probate duty is paid consists of fiduciary documents which cannot be considered in a nation's wealth, such as bills of exchange and stocks of the National Debt. This last, 700 millions sterling, is held in the United Kingdom, and consequently figures among testamentary estates, while adding nothing to the nation's wealth.

FRANCE

Numerous estimates have been made : those of Lavoisier, 1789, and Chaptal, in 1815, were as follows :—

	Millions £	
	1789	1815
Rural property . . .	840	1,040
Urban property . .	280	320
Personal property . .	400	440
Total .	1,520	1,800

Those of Fournier de Flaix and Yves Guyot, from 1826 to date, are as follows :—

Flaix				Guyot			
Year	Million £			Year	Million £		
	Real	Personal	Total		Real	Personal	Total
1826	1,560	1,020	2,580	1826	1,720	1,120	2,840
1833	1,674	1,152	2,826	1833	1,840	1,280	3,120
1841	1,881	1,359	3,240	1841	2,080	1,520	3,600
1849	2,115	1,530	3,645	1855	2,280	1,560	3,840
1857	2,322	1,971	4,293	1860	2,480	1,880	4,360
1865	2,934	2,646	5,580	1865	2,640	2,200	4,840
1873	3,510	3,312	6,822	1875	3,560	3,240	6,800
1882	4,835	4,275	9,110	1885	4,480	4,080	8,560

The following is a summary of the most notable estimates :—

Year				Million £	Author
1789	.	.	.	1,520	Lavoisier
1815	.	.	.	1,800	Chaptal
1853	.	.	.	5,000	Girardin
1871	.	.	.	7,000	Wolowski
1872	.	.	.	7,600	Ayen
1879	.	.	.	8,000	Foville
1879	.	.	.	7,520	Leroy Beaulieu
1879	.	.	.	9,600	Amelin
1880	.	.	.	9,200	Vacher
1881	.	.	.	8,640	Mouey
1882	.	.	.	9,110	Flaix
1885	.	.	.	8,560	Guyot

The following table shows approximately the components of the wealth of France at various dates :—

	Value in Million £				
	1789	1826	1840	1873	1888
Land . . .	740	1,293	1,473	3,000	2,688
Cattle, &c. .	105	202	270	588	541
Houses . .	280	510	720	1,150	1,704
Furniture .	140	255	360	675	852
Railways .	...	...	10	270	532
Shipping .	4	7	7	12	15
Bullion . .	88	110	115	180	300
Merchandise	11	19	33	120	155
Public works	40	170	300	450	630
Sundries .	112	274	312	377	1,143
Total .	1,520	2,840	3,600	6,822	8,560

De Flaix and Vacher make the total 500 or 600 millions more than the above estimate for 1888, but perhaps they have not sufficiently allowed for the depreciation of land since 1880. The above total is that given by Yves Guyot for 1885. The increase of wealth since 1873 appears to have averaged 116 millions sterling per annum.

BELGIUM

Massalski, in his *Richesse de Belgique* (1880), sums up the national wealth at 29½ milliards of francs, or 1180 millions sterling, which is 17 per cent. over my estimate. It is to be observed that properties subject to legacy and succession duties from 1880 to 1885 averaged only 18 millions sterling, which at the current death-rate of 20 per thousand would give a total wealth of 900 millions sterling, exclusive of royal palaces, public works, &c. : these latter would hardly exceed 110 millions sterling.

GERMANY

It is remarkable that whereas the earnings of the German people, as set forth under the head of *Income*, are only 1 per cent. less than those of France, the wealth of Germany appears to be one-fourth less. This is, however, in great measure explained by the great difference in the value of land, Germany averaging £21, France £33 per cultivated acre. The imperial assessment for taxation is in the following ratio, and if we suppose wealth to be distributed in like manner, it will be as in the subjoined table :—

					Ratio	Millions £
Prussia	.	.	.	.	60.3	3,425
Bavaria	.	.	.	.	11.7	665
Saxony	.	.	.	.	6.6	375
Wurtemburg	.	.	.	.	4.3	244
Baden	.	.	.	.	3.4	193
Alsace	.	.	.	.	3.4	193
Hesse	.	.	.	.	2.1	119
Other States	.	.	.	.	8.2	467
Total	.			.	100.0	5,681

Soetbeer shows that the earnings of the Prussian people advanced 25 per cent. from 1872 to 1885, and if we suppose that wealth increased in like degree, this makes the accumulation of thirteen years amount to 1136 millions, or 88 millions sterling per annum—say 40s. per inhabitant, against 72s. in the United Kingdom.

AUSTRIA

In 1880 Beer estimated the total wealth of the monarchy at 40,000 million florins, or about 3800 millions sterling, being only 1½ per cent. under my estimate. We have no means to arrive at the increase of wealth, but Roschmann in 1883 estimated the national earnings at 610 millions sterling, against 550 millions in 1874, an increase of 11 per cent. If wealth increased in the same ratio the accumulation must have been 380 millions sterling, or 42 millions per annum, say 23s. per inhabitant, against 40s. in Germany.

ITALY

Newmann Spallart valued the total wealth of the country thus :—

						Million £ Sterling
Lands .	.	.	.	.	.	1,160
Houses	.	.	.	.	.	360
Furniture, railways, &c.	.	.		404
	Total	.	.			1,924

This was too low a valuation, an Italian writer in 1868 having arrived at a total of 1934 millions.

Pantaleoni, following Porter's method, based on legacy returns, shows that (exclusive of public property) the wealth of the people exceeds 2100 millions ; he multiplies the amount of property subjected to legacy or succession by forty. The amount of such property in 1884 was £53,500,000, and hence the national wealth was 2140 millions sterling. This is exclusive of roads, public buildings, royal navy, arsenals, harbours &c., worth at least 300 millions, bringing up the total to 2440 millions sterling. This is 16 per cent. less than my estimate. Possibly some of the property subjected to legacy-duty was undervalued, in order to enable the heirs to evade a part of the duties. According to the *Archivio*, the value of lands and houses in 1880 was 1562 millions sterling ; in my table they stand for 1576 millions, a difference of less than 1 per cent.

SPAIN

The figures of the Junta de Medios in 1832 compare with mine for 1888 as follows :—

				Million £ Sterling		
				1832	1888	Increase
Lands .	.	.	.	686	984	298
Houses .	.	.	.	237	340	103
Railways	.	.	.	...	94	94
Sundries	.	.	.	186	1,098	912
Total	.	.		1,109	2,516	1,407

It is manifest that the item of sundries in 1832, which included everything in the kingdom except land and houses, was very much understated. Personal property alone would have been at least 25 per cent. of total. A proper valuation in 1832 would perhaps have shown a total of 1400 millions. In that case the accumulation of the 56 years down to 1888 would average 20 millions sterling per annum, or 27s. per inhabitant, as compared with 40s. in Germany, and 72s. in United Kingdom.

DENMARK

In 1885 Falbe estimated the total wealth at 372 millions sterling, or 8 per cent. less than my total for 1888. His figures were :—

	Million £
Houses and lands	257
Personal property	115
Total	372

He estimated that real estate had risen from 65 millions sterling in 1848, being an increase of 192 millions sterling in 37 years, say £5,200,000 per annum. This (irrespective of chattels or personal property) was equivalent to an accumulation of 60s. yearly per inhabitant. It was the direct result of breaking up the estates of the nobles, and facilitating their purchase by the peasantry.

HOLLAND

The value of testamentary and succession property which changed hands in the years 1879–83, latest that the *Résumé* publishes, averaged as follows :—

	£
Houses and lands	9,100,000
Dutch National Debt . . .	1,200,000
Other personal assets . . .	13,000,000
Total . . .	23,300,000

Excluding the National Debt for reasons already given, we find a sum of £22,100,000, which, multiplied by 44 (as the living were in those years 44 times the number of deaths), gives approximately the wealth of Holland, say 972 millions sterling ; the figure in the conspectus is 980 millions.

UNITED STATES

The first Census of wealth was taken in 1790, which showed as follows :—

	$	£
Lands . . .	479,000,000 =	99,800,000
Houses, &c. . .	141,000,000	29,400,000
Total .	620,000,000	129,200,000

The following table shows the results in English gold at each Census, and an estimate for 1888 as already given :—*

* The New York *Journal of Commerce* in 1887 estimated the wealth of the Union at 61,000 millions of dollars, or 12,700 millions sterling, showing, moreover, that the amount of insured property had risen as follows :—

Year					£
1870	.	.	.	.	735,000,000
1880	.	.	.	.	1,495,000,000
1885	.	.	.	.	2,184,000,000

Year	Wealth, Million £	£ Sterling per Inhabitant	Yearly Increase	
			Of Wealth, £	Per Inhabitant
				£ s. d.
1790 . .	129	33	...	...
1800 . .	222	42	9,300,000	2 1 0
1810 . .	312	43	9,000,000	1 9 0
1820 . .	392	41	8,000,000	0 19 0
1830 . .	552	43	16,000,000	1 9 0
1840 . .	782	46	23,000,000	1 11 0
1850 . .	1,484	64	70,200,000	3 10 0
1860 . .	3,361	107	187,700,000	6 16 0
1870 . .	5,413	140	205,200,000	5 17 0
1880 . .	9,077	180	366,400,000	8 4 0
1888 . .	12,824	210	468,400,000	8 10 0

The following table shows approximately the chief components of American wealth since 1850 :—

	Millions of Dollars, Gold				
	1850	1860	1870	1880	1888
Land . . .	3,310	6,910	8,320	10,197	12,300
Cattle . . .	550	1,080	1,415	1,630	2,405
Railways . .	290	1,140	2,047	4,897	9,340
Factories . .	520	1,010	1,902	2,790	3,500
Houses . . .	1,000	2,600	5,460	10,800	14,000
Furniture . .	500	1,300	2,730	5,400	7,000
Sundries . .	966	2,120	4,108	7,928	13,055
Total .	7,136	16,160	25,982	43,642	61,600

Comparing the Census returns of 1880 with those of 1850, it appears that the accumulations of thirty years amounted in the State of New York alone to 1360 millions sterling, and that the six States of New York, Pennsylvania, Illinois, Ohio, Massachusetts, and California stood for 60 per cent. of the total accumulations of the Union. If we suppose that each inhabitant contributed equally to the public wealth, and take the mean number of each nationality for the 30 years in question, we find the accumulations of 30 years ending 1880 were made up thus :—

State	Increase of Wealth, Million £ Sterling, by				
	Americans	Irish	Germans	Others	Total
New York . . .	1,027	156	87	90	1,360
Pennsylvania . .	831	63	41	37	972
Illinois . . .	494	27	47	43	611
Ohio	506	17	38	20	581
Massachusetts . .	355	66	4	37	462
California . . .	195	23	14	61	293
Other States . .	2,822	119	143	228	3,312
Total .	6,230	471	374	516	7,591

The several Census returns from 1850 to 1880 show the wealth of each State in values reduced to English gold (allowing 14 per cent. discount for paper values in 1870) as follows :—

	Million £ Sterling				Increase of 30 Years	£ Sterling per Inhabitant			
	1850	1860	1870	1880		1850	1860	1870	1880
Maine	26	39	63	104	78	44	60	102	160
New Hampshire	22	32	46	68	46	70	96	144	196
Vermont	19	25	42	60	41	60	77	126	180
Rhode Island	17	28	53	87	70	112	160	240	320
Connecticut	32	92	140	177	145	85	201	256	283
Massachusetts	119	169	384	581	462	120	135	257	320
New England . . .	235	385	728	1,077	842	86	122	208	270

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	Million £ Sterling				Increase of 30 Years	£ Sterling per Inhabitant			
	1850	1860	1870	1880		1850	1860	1870	1880
New York	224	384	1,170	1,585	1,361	73	99	261	322
New Jersey	42	98	169	298	256	87	147	186	260
Pennsylvania	150	295	686	1,122	972	65	101	196	262
Delaware	4	9	17	29	25	44	80	136	200
Maryland	46	79	116	181	135	80	115	150	195
Middle States	466	865	2,158	3,215	2,749	70	105	220	257
Virginia	89	166	108	208	119	63	105	61	98
North Carolina	47	75	47	92	45	55	75	44	66
South Carolina	60	114	38	61	1	90	163	54	61
Georgia	70	134	48	115	45	77	126	32	77
Florida	5	15	8	20	15	56	105	43	74
Alabama	48	103	36	79	31	63	107	40	64
Mississippi	48	127	38	67	19	79	159	44	60
Louisiana	49	125	58	88	39	95	180	78	93
Texas	11	76	29	151	140	52	126	35	94
Arkansas	8	46	28	51	43	38	104	58	64
Kentucky	63	138	109	183	120	64	120	84	111
Tennessee	42	103	90	138	76	42	92	72	90
The South	540	1,222	637	1,253	713	66	119	57	82
Ohio	105	249	402	686	581	53	107	150	215
Illinois	32	181	382	643	611	38	105	151	210
Missouri	28	104	231	318	290	42	88	138	147
Indiana	42	110	229	312	270	42	82	138	156
Iowa	5	51	130	294	289	26	77	108	180
Michigan	12	53	130	285	273	30	70	108	177
Wisconsin	9	57	126	202	193	30	71	120	150
Minnesota	...	11	41	133	133	...	66	91	170
Kansas	...	6	34	120	120	...	55	93	120
Nebraska	...	2	13	60	60	...	70	104	132
Colorado	...	...	4	31	31	...	...	100	160
California	5	43	115	300	295	55	113	206	350
Oregon	1	6	9	26	25	75	120	100	150
Nevada	...	...	6	14	14	...	...	145	230
Territories	6	21	38	108	102	...	...	...	...
The West	245	894	1,890	3,532	3,287	43	92	136	187
The Union	1,486	3,366	5,413	9,077	7,591	64	107	140	180

The accumulations per inhabitant in thirty years average £205 sterling, or nearly £7 per annum, viz. :—

States	Increase Million £	Annual Average, £	Mean Population	Annual Accumulation per Head
				£ s. d.
New England	842	28,070,000	3,400,000	8 4 0
Middle	2,749	91,630,000	9,500,000	9 13 0
South	713	23,800,000	11,700,000	2 1 0
West	3,287	109,600,000	12,200,000	9 0 0
Union	7,591	253,100,000	36,800,000	6 17 0

This is a prodigious growth of wealth in thirty years, and without parallel in the history of the human race. Nevertheless the accumulation per head is less than in Australia.

AUSTRALIA

According to Mr. Coghlan the wealth of Australia was approximately as follows :—

	Millions	Population	Per Head
	£		£
1838	26	200,000	130
1863	181	1,264,000	144
1888	1,136	3,680,000	307

This includes the five Colonies of the mainland, and also Tasmania and New Zealand. It is, however, incomplete, because it excludes public works, crown-lands, and other public properties.

The total wealth, as shown in the conspectus, appears to reach the sum of 1373 millions sterling, and to have grown in eighteen years as follows :—

	Million £ Sterling	
	1870	1888
Lands	89	533
Cattle	47	67
Railways	27	94
Houses	60	239
Furniture	30	120
Merchandise	29	65
Sundries	38	255
Total	320	1,373

At a meeting of one of the Australian banks in London in 1888, it was stated that the wealth of the seven Colonies was as follows :—

						Million £
Private wealth	.	.	.	.	.	1,015
Public works	.	.	.	.	.	175
Banks	.	.	.	.	.	148
Total	.	.				1,338

This was, however, irrespective of crown-lands, the value of which could not be easily stated.

Mr. Coghlan's distribution of the wealth of the several Colonies differs from my estimates as follows (1888) :—

	Millions Sterling	
	Coghlan	Mulhall
New South Wales . .	410	483
Victoria . . .	386	370
Queensland . .	106	132
South Australia . .	57	131
Tasmania . . .	26	36
New Zealand . .	145	208
Western Australia . .	6	13
Total . .	1,136	1,373

Mr. Coghlan's figures, as already stated, exclude railways, crown-lands, &c. The principal components of wealth in 1888 may be estimated to have stood thus in million £ sterling :—

	Land	Cattle	Railways	Houses	Furniture	Merchandise	Sundries	Total	£ per Head
N. S. Wales	181	25	27	92	46	23	89	483	440
Victoria . .	107	12	28	91	46	18	68	370	337
Queensland .	58	12	13	12	6	6	25	132	330
S. Australia .	64	5	10	13	7	7	25	131	413
Tasmania .	16	1	2	5	3	2	7	36	240
New Zealand	100	11	13	25	12	8	39	208	345
W. Australia	7	1	1	1	...	1	2	13	310
Total .	533	67	94	239	120	65	255	1,373	377

The increase of wealth in Australia would therefore seem to have been as follows :—

Date	Wealth, Million £	Annual Increase, £	Mean Population	Annual Accumulation per Inhabitant
				£ s. d.
1838 . .	26	...	...	...
1863 . .	181	6,200,000	700,000	8 16 0
1870 . .	320	19,900,000	1,600,000	12 9 0
1888 . .	1,373	58,500,000	2,800,000	20 18 0

The average annual accumulation per inhabitant has been more than double that in the United States, where it has never exceeded £8 10s.

Respecting the Colony of New South Wales, Mr. Coghlan states that if public works, railways &c., were included, the total would reach 521 millions sterling, that is, 8 per cent. over my estimate. And as regards Victoria, one of the Melbourne papers (apparently quoting the official statistics of Mr. Hayter) says :—" In the statistics of the Colony for 1886, an estimate is made of the wealth of the population on the basis of the property left by deceased persons, it being supposed that the average amount left by each person dying is equivalent to the average amount possessed by each person living. On this basis the national wealth amounted to nearly 144 millions sterling, or £185 per head in the five years 1872 to 1876; to nearly 187 millions sterling, or £223 per head in the five years 1877 to 1881; and to nearly 286 millions sterling, or £305 per head in the five years 1882 to 1886."

The above is exclusive of railways, public works &c., which would doubtless bring up the total to my figure of 370 millions sterling in 1888. With respect to New Zealand, the official returns for 1886, exclusive of public

works, and crown-lands, amounted to 152 millions sterling, which was apparently equivalent to 200 millions, including the items omitted. It is right to observe that the public debt, which was 175 millions sterling in December 1889, is held almost wholly in England, and ought therefore to be deducted from the wealth. This would leave a balance of 1200 millions sterling, or £330 per inhabitant, against £247 in the United Kingdom, £210 in the United States, £230 in Denmark, £224 in France.

CANADA

The following table shows approximately the total wealth in 1861 and 1888 :—

	Million £ Sterling		
	1861	1888	Increase
Lands	102	282	180
Cattle, &c. . . .	38	80	42
Railways . . .	23	151	128
Houses	80	127	47
Furniture . . .	40	64	24
Merchandise . . .	11	21	10
Sundries . . .	98	255	157
Total . .	392	980	588

This shows an annual accumulation of 22 millions sterling, with a mean population of 4,000,000 souls, say £5 10s. per head, against £8 10s. in the United States, and £17 10s. during the same period in Australia.

CAPE COLONY

In 1883 the value of lands and houses was assessed as follows :—

				£
Cape Town .	.	.	.	4,979,000
Port Elizabeth	.	.	.	1,950,000
Kimberley .	.	.	.	1,711,000
Rural districts	.	.	.	29,160,000
Total	.	.	.	37,800,000

This is 10 per cent. less than my estimate for 1888, as shown in the conspectus.

WEIGHTS AND MEASURES

The following is a general table of weights and measures :—

Name	Locality	Equivalent
Acre	England	4,840 square yards
Almud	Turkey	7 = 8 gallons
,, . . .	Portugal	4 = 15 ,,
Amphora . . .	Rome	7 ,,
Ar	France	100 = 247 acres
Ardeb . . .	Egypt	300 lbs.
Arpent . . .	France	12 = 10 acres
Arroba . . .	Spain	25 lbs.
Aum . . .	Germany	31 gallons
Bag, cocoa . .	England	112 lbs.
,, coffee . .	Brazil	160 ,,
,, rice . .	India	168 ,,
,, sugar . .	,,	168 ,,
Bale . . .	United States	485 ,,
,, . . .	Brazil	156 ,,
,, . . .	Egypt	600 ,,
,, . . .	India	376 ,,
Barrel, ale . .	England	36 gallons
,, apples . .	United States	150 lbs.
,, flour . .	,,	200 ,,
,, fish . .	Norway	1,000 in number
Berkovetz . . .	Russia	400 lbs.
Bonnier . . .	France	3 acres

Name	Locality	Equivalent
Bushel, barley	England	54 lbs.
,, beans	,,	63 ,,
,, hempseed	,,	44 ,,
,, maize	,,	59 ,,
,, malt	,,	38 ,,
,, oats	,,	40 ,,
,, peas	,,	64 ,,
,, rye	,,	59 ,,
,, salt	,,	56 ,,
,, wheat	,,	61 ,,
Bunder	Holland	2=1 acre
Butt	England	108 gallons
Cable	,,	120 fathoms
Cantar	Egypt	100 lbs.
Cask, rice	United States	672 ,,
,, tallow	England	1,008 ,,
,, wine	,,	108 gallons
Catty	China	3=4 lbs.
Centner	Germany	110 lbs.
,, metric	,,	220 ,,
Chain	England	66 feet
Chaldron, coal	,,	3=8 tons
Chest, tea	China	82 lbs.
Chetvert	Russia	310 ,,
Chittack	India	2 ounces
Cord, wood	Germany	2½ tons
Cuartillo	Spain	9=1 gallon
Cubit	Asia	18 inches
Dessiatine	Russia	3=8 acres
Drachm	England	16=1 ounce
Eimer	Austria	12 gallons
Ell	England	36 inches
Fanega	Spain	4 bushels
Fanegado	,,	10=16 acres
Fathom	England	6 feet
Feddan	Egypt	20=21 acres
Ferrado	Portugal	8=1 acre
Firkin	England	68 lbs.
Flask, quicksilver	,,	76 ,,
Furlong	,,	220 yards
Gallon	,,	4 quarts
Gill	,,	4=1 pint
Grain	,,	480=1 ounce
Gramme	,,	453—1 lb.
Hank	,,	840 yards
Hectare	France	100=247 acres
Hectolitre	,,	22 gallons
,,	,,	150 lbs.
Hide	England	100 acres
Hogshead	,,	63 gallons
Hundred, great, eggs	,,	10 dozen
Inch	,,	12=1 foot
Jar, oil	Italy	25 gallons
Joch	Hungary	100=143 acres
Juchart	Switzerland	5=4 acres
Kanna	Sweden	100=58 gallons
,,	Germany	100=44 ,,
Kilderkin	England	18 ,,
Kilogram	France	1,000=1 ton
Kilometre	,,	100=62 miles
Klafter, wood	Austria	2 tons
Knot	England	2,000 yards
Last	Norway	3½ tons
,,	Germany	2 ,,
,, salt	England	18 barrels
League	Holland	6,380 yards
,,	Spain	6,160 ,,
,,	Portugal	6,760 ,,
,,	France	4,860 ,,
,,	Marine	6,075 ,,
Liño	Paraguay	50=1 acre
Litre	France	100=22 gallons
Load, bricks	England	500
,, corn	,,	40 bushels
,, hay	,,	1 ton
,, straw	,,	½ ton
,, wood	,,	50 cubic feet
Mark	France	8 oz. silver

Name	Locality	Equivalent
Mark	France	gold=£25
Maund	India	80 lbs.
Motre	France	100=328 feet
Mancus	England	2 ounces
Metzen	Germany	24=1 ton
Mile	England	1,760 yards
,,	Ireland	2,240 ,,
,,	Germany	8,140 ,,
,,	Turkey	1,870 ,,
,,	Sweden	11,770 ,,
,,	Geographical	2,025 ,,
Millimetre	France	25=1 inch
Minute	,,	60=1 hour
Morgen	Germany	5=3 acres
Mudden	Holland	14=1 ton
Muid	France	50 bushels
Oke	Greece	4=11 lbs.
Ounce	England	16=1 lb.
,,	Avoirdupois	12=1 ton
Pack, wool	England	240 lbs.
Palm	,,	4 inches
Parasang	Persia	3½ miles
Peck	England	14 lbs.
Pennyweight	,,	20=1 ounce
Perch	,,	5½ yards
Picul	China	133 lbs.
Piece, calico	England	24 yards
Pint	,,	8=1 gallon
Pipe	,,	126 gallons
Poinçon	France	25 gallons
Pocket, hops	England	168 lbs.
Pole	,,	16½ feet
Pond	Denmark	100=110 lbs.
Pood	Russia	36 lbs.
Pott	Norway	100=21 gallons
Pound	England	16 ounces
,,	Rome	12 ,,
Puncheon	England	120 gallons
Quarter	,,	8 bushels
Queue, wine	France	54 gallons
Quintal	Spain	110 lbs.
,, metrical	Austria	220 ,,
Rittergut	Germany	600 acres
Rood	England	4=1 acre
Sack, coal	,,	224 lbs.
,, flour	,,	280 ,,
Sàgene	Russia	7 tons wood
Second	,,	60=1 minute
Salma	Spain	4½ acres
Scheffel	Germany	100=145 bushels
Schekel	Asia	2=1 ounce
Septier	France	4=17 bushels
Sextarius	Rome	6=1 gallon
Skalpund	Sweden	106=100 lbs.
Span	England	9 inches
Strema	Greece	4=1 acre
Stadium	,,	120 yards
Stère, wood	France	35 cubic feet
Stone, fish	England	14 lbs.
,, meat	,,	8 ,,
Stoup	,,	2=1 gallon
Talent, gold	Asia	4 lbs.
Tavola	Italy	40=1 acre
Tierce, pork	England	320 lbs.
Toise	France	6½ feet
Ton	England	2,240 lbs.
,,	United States	2,000 ,,
Tub	England	84 lbs.
Truss, straw	,,	36 ,,
,, hay	,,	56 ,,
Tun, wine	,,	252 gallons
Tunna	Sweden	4 bushels
Tunnland	,,	4=5 acres
Vara	Spain	34.1 inches
Vedro	Russia	10=27 gallons
Verst	,,	100=60 miles
Yard	England	36 inches

Grain

	Cubic Feet	Bushel	Quarter	Hecto-litre	Scheffel	Metzen	Chetvert
Cubic metre	35.3	27.60	3.45	10.00	19.30	16.50	5.00
Bushel . .	1.3	1.00	0.12	0.36	0.70	0.60	0.18
Quarter . .	10.4	8.00	1.00	2.90	5.60	4.80	1.44
Ton . . .	52.0	40.00	5.00	14.50	28.00	24.00	7.20
Hectolitre .	3.5	2.76	0.35	1.00	1.93	1.65	0.50
Scheffel . .	1.9	1.45	0.18	0.53	1.00	0.86	0.26
Metzen . .	2.2	1.66	0.21	0.60	1.16	1.00	0.30
Chetvert .	7.0	5.55	0.70	2.00	3.90	3.30	1.00

Length

	Knot	Mile	Kilometre	Verst
Mile . . .	0.88	1.00	1.61	1.50
Knot . . .	1.00	1.14	1.83	1.71
Kilometre .	0.55	0.62	1.00	0.93
Verst . . .	0.58	0.66	1.07	1.00

Liquids .

	Lbs.	Cubic Feet	Litre	Hecto-litre	Eimer	Barrel	Hogs-head
Gallon .	10.0	0.14	4.5	0.045	0.080	0.027	0.016
Litre . .	2.2	0.035	1.0	0.010	0.018	0.006	0.004
Hectolitre	220.0	3.10	100.0	1.000	1.760	0.600	0.350
Eimer . .	124.0	1.75	56.0	0.560	1.000	0.340	0.200
Barrel . .	360.0	5.00	160.0	1.600	2.880	1.000	0.576
Hogshead .	630.0	8.80	284.0	2.835	5.000	1.710	1.000

Sundries

	Lbs.	Cwt.	French Ton	American Ton	Kilogram	Pood	Picul
English ton	2,240	20.00	1.018	1.120	1,018	62.20	16.80
Cwt. . .	112	1.00	0.051	0.056	51	3.11	0.84
Quintal. .	110	0.98	0.050	0.055	50	3.05	0.82
French ton	2,204	19.64	1.000	1.100	1,000	61.00	16.50
American ton .	2,000	17.86	0.910	1.000	910	56.40	15.00
Kilogram .	2.20	00.02	0.001	0.001	1.0	0.06	0.016
Pood . .	36	0.32	0.017	0.018	16.3	1.00	0.27
Picul . .	133	1.20	0.061	0.067	60.0	3.67	1.00

Superficial

	Sq. Yards	Acre	Morgen	Hectare	Dessiatine	Square Kilometre	Square Mile
Acre . . .	4,840	1.00	1.56	0.405	0.367	0.0040	0.0016
Morgen. .	3,122	0.65	1.00	0.260	0.235	0.0026	0.0010
Joch . .	6,914	1.43	2.23	0.576	0.520	0.0057	0.0022
Hectare. .	12,000	2.47	3.84	1.000	0.910	0.0100	0.0039
Dessiatine .	13,100	2.70	4.20	1.093	1.000	0.0091	0.0035
Sq. kilom. .	1,190,000	250	390	100	91	1.0000	0.3900
Sq. mile .	3,097,600	640	1,000	260	235	2.60	1.0

Old English Measures

Name	Date	Wine Gallon, Cub. In.	Beer Gallon, Cub. In.	Corn Gallon, Cub. In.	Bushel, Cub. In.
Magna Charta . .	1225	217	266	266	2,130
Edward III. . .	1353	219	268	268	2,148
Henry VII. . .	1496	224	280	280	2,240
Henry VIII. . .	1531	231	282	282	2,256

WHEAT

It cannot be grown farther than 60° N. lat. The greatest elevation at which it is found is as follows :—

	Feet		Feet
Alps	3,600	Sierra Nevada . .	8,200
Brazil . . .	5,000	Abyssinia . .	10,000
Caucasus . .	8,000	Andes . .	11,000

The yield in various countries for 100 lbs. of seed is :—

	Lbs.		Lbs.
Russia	500	France . . .	750
Sweden . . .	500	Poland . .	800
Denmark . . .	600	Great Britain .	900
Prussia . . .	600	Holland . .	900
Spain	600	United States .	900
Austria . . .	700	Italy . . .	1,000

The cultivation in the United Kingdom was :—

Period	Annual Average			
	Acres	Million Bushels	Con-sumption	Deficit
1849–54 . . .	4,270,000	118	152	34
1855–66 . . .	3,740,000	107	161	54
1867–72 . . .	3,560,000	98	176	78
1873–78 . . .	3,310,000	80	184	104
1881–89 . . .	2,750,000	80	224	144

The average value of wheat crop per acre in United States was as follows in British money :—

Period	Shillings	Period	Shillings
1871–74 . . .	58	1880–83 . . .	49
1875–79 . . .	52	1884–87 . . .	34

See full statistics at page 8, *Agriculture.*

WINDMILLS

Holland has 10,100 windmills, representing a value of 20 millions sterling, with an aggregate force of 52,200 horse-power. Cost of drainage, 10d. per acre, with a lift of 3 feet; 20d. at 6 feet, and so on. The average area drained by each mill in Holland is 310 acres, each lifting 150,000 tons or 33 million gallons water daily.

WINE

Vineyards, Area, and Production*

Country	Acres (1889)	Millions of Gallons per Annum			Gallons per Acre	Vintage Value, Million £
		1876–85	1880–88	Latest Estimate		
France . .	4,550,000	810	670	520	112	44
Italy . .	7,640,000	486	665	580	78	48
Spain . .	4,200,000	450	630	550	130	46
Austria . .	1,580,000	198	225	180	115	15
Portugal .	510,000	88	125	90	175	9
Germany .	335,000	45	75	70	210	6
Russia . .	300,000	40	75	40	130	4
Turkey . .	200,000	20	59	20	100	2
Greece . .	310,000	30	32	34	110	3
Servia . .	300,000	13	46	45	150	3
Roumania .	200,000	22	35	30	150	2
Switzerland .	70,000	13	15	15	210	1
Europe . .	20,195,000	2,215	2,652	2,174	108	183
U. States .	130,000	18	19	18	140	2
Chili . .	200,000	20	20	20	100	2
Argentina .	66,000	6	6	6	100	1
Cape Colony	18,000	4	4	4	220	...
Australia .	15,000	2	2	2	140	...
Algeria . .	132,000	15	18	40	300	3
Total .	20,756,000	2,280	2,731	2,264	109	191

* For consumption of wine see *Alcohol*, p. 58.

The figures for 1876–85 are by Newmann Spallart, those of 1880–88 from the *Moniteur Vinicole* (apparently too high), and the latest estimates are from numerous sources. An acre of vineyard has ordinarily 2400 vine plants.

Retrospect of Production

	Millions of Gallons		
	1810–20	1840–50	1880·88
France	455	820	670
Italy	310	360	665
Spain	170	250	630
Austria	590	500	225
Portugal . . .	75	100	125
Germany . . .	30	40	75
Other countries . .	120	230	321
Total . .	1,750	2,300	2,711

The vine flourishes between 35 and 50 degrees of N. lat., and 28 and 46 S.

The largest vine in the world is said to be one growing at Oys, Portugal, which has been in bearing since 1802. Its maximum yield was in 1864, in which year it produced a sufficient quantity of grapes to make 165 gallons of wine. In Portugal it is customary to plant 2500 vines to the acre, and the yield is often 240 gallons per acre, or a gallon from 10 vines. In South Africa a bushel of grapes gives a gallon of wine.

UNITED KINGDOM

The consumption has been as follows :—

Year	Gallons	Duty, Shillings per Gallon	Gallons per Inhabitant
1801 . . .	6,877,000	10	0.45
1811 . . .	5,630,000	14	0.32
1821 . . .	4,702,000	14	0.23
1831 . . .	6,220,000	6	0.26
1841 . . .	6,185,000	6	0.22
1851 . . .	6,282,000	6	0.23
1861 . . .	10,693,000	1	0.36
1871 . . .	16,145,000	1	0.53
1881 . . .	15,550,000	1	0.44
1888 . . .	13,500,000	1	0.36

GERMANY

The area and vintage in 1884 were as follows :—

	Acres	Gallons	Value, £
Alsace	80,000	21,000,000	4,200,000
Bavaria	60,000	9,000,000	1,800,000
Wurtemburg . .	60,000	9,000,000	1,800,000
Baden	55,000	8,000,000	1,600,000
Prussia	50,000	8,000,000	1,600,000
Other States . . .	30,000	9,000,000	1,800,000
Total . .	335,000	64,000,000	12,800,000

ITALY

The vintage in the years 1883–85 averaged as follows :—

	Gallons	Value, £
Island of Sardinia . . .	9,000,000	700,000
Piedmont and Liguria . .	57,000,000	4,600,000
Lombardy and Venetia .	46,000,000	3,700,000
Tuscany	44,000,000	3,600,000
States of the Church . .	81,000,000	6,500,000
Naples	138,000,000	11,000,000
Sicily	106,000,000	8,500,000
Total . .	481,000,000	38,600,000

The area under vines increased rapidly in late years, from 4,800,000 acres in 1880 to 7,640,000 in 1888.

FRANCE

A table of French vintages since 1810 is given at page 19 (*Agriculture*).

The following statistics of Champagne are published at Rheims :—

Year	Millions of Bottles	
	Stock	Export
1850	20	5
1860	36	8
1870	39	14
1880	68	17
1886	83	15

The stock in 1886 was considered equal to four years' consumption, which comprises 3,000,000 bottles yearly in France, and 17,000,000 in other countries.

UNITED STATES

Official returns of the vintages since 1840 show thus :—

Year	Gallons	Year	Gallons
1840 . . .	120,000	1870 . . .	3,060,000
1850 . . .	220,000	1880 . . .	23,300,00c
1860 . . .	1,860,000	1885 . . .	17,400,000

The Census of 1880 showed the vineyards thus :—

	Acres	Gallons Wine	Value, £ Stg.
California . .	32,000	13,600,000	850,000
New York . .	13,000	600,000	80,000
Ohio	10,000	1,600,000	330,000
Other States .	127,000	7,700,000	1,540,000
Total . .	182,000	23,500,000	2,800,000

GREECE

The area and vintage of grapes and currants were as follows :—

Year	Acres	Gallons
1860 . . .	162,000	15,000,000
1875 . . .	260,000	25,000,000
1879 . . .	310,000	30,000,000
1887 . . .	...	50,000,000

ALGERIA

Area and vintage have increased rapidly of late years, viz. :—

Year	Acres	Gallons
1880 . . .	55,000	9,000,000
1885 . . .	132,000	22,000,000
1888 . . .	238,000	40,000,000

In 1889 Algeria exported 34 million gallons to France.

WINE-EXPORTING COUNTRIES

The exportation was approximately (mill. galls.) :—

Year	France	Italy	Spain	Portugal	Greece	Total
1830 . . .	18	2	10	3	...	33
1840 . . .	24	3	15	4	...	46
1850 . . .	38	4	20	4	...	66
1860 . . .	48	5	24	5	1	83
1870 . . .	70	5	33	6	2	116
1880 . . .	55	48	134	7	3	247
1887 . . .	53	52	167	10	4	286

Rudesheimer is worth £20 a gallon. Prince Woronzoff sells his Tokay, 220 years old, at £9 a bottle. Champagne vintage averages 20 million bottles, of which France exports 17 millions. The Xeres vineyards, 15,000 acres, produce 4 million gallons yearly of sherry. Wine loses strength after 200 years.

WOOL

The production has been (unwashed) approximately as follows :—

	Millions of Lbs.				
	1820	1840	1860	1880	1887
United Kingdom .	100	121	155	176	160
France . . .	116	144	150	117	126
Germany . . .	64	85	125	120	105
Russia . . .	102	126	164	203	240
Austria . . .	60	72	81	80	70
Italy	18	23	23	30	32
Spain	40	42	58	70	70
Portugal . . .	4	5	8	10	10
Scandinavia . .	15	20	23	26	26
Various . . .	7	8	8	17	16
Europe . . .	526	646	795	849	855
United States . .	20	65	75	233	320
River Plate . .	4	15	56	280	360
Cape Colony . .	2	10	28	52	82
Australia . . .	2	14	70	390	420
Various . . .	6	36	84	184	181
Total .	560	786	1,108	1,988	2,218

Europe in 1820 produced 94 per cent. of the wool of the world, whereas now it does not produce 40 per cent.

The principal features of the woollen industry in 1887–88 were approximately as follows :—

	Million Lbs. Wool		Million Lbs. Yarn Spun	Woollen Manufactures, £	
	Produced	Consumed		Produced	Consumed
U. Kingdom	160	436	225	43,900,000	29,700,000
France . .	126	420	162	30,800,000	19,000,000
Germany .	105	340	133	25,100,000	15,700,000
Russia . .	240	154	100	17,700,000	18,000,000
Austria . .	70	100	65	11,400,000	11,100,000
Italy . . .	32	49	31	4,700,000	7,000,000
Spain . .	70	56	35	6,000,000	7,400,000
Portugal .	10	14	10	1,600,000	1,900,000
Scandinavia	25	25	14	2,500,000	5,500,000
Belgium . .	2	101	35	6,000,000	3,000,000
Various . .	20	20	12	2,000,000	4,000,000
Europe . .	860	1,715	822	151,700,000	122,300,000
U. States .	320	434	213	34,400,000	42,400,000
Canada . .	15	14	8	1,500,000	4,000,000
River Plate .	360	10	...	500,000	2,000,000
Australia .	420	15	...	1,500,000	4,000,000
S. Africa .	82	5	...	100,000	400,000
India . . .	55	20	12	2,000,000	3,700,000
Various . .	106	5	...	100,000	13,000,000
Total .	2,218	2,218	1,055	191,800,000	191,800,000

The aggregate production of wool for sixty-seven years was approximately as follows :—

Tons Unwashed

Period	Europe	U. States	River Plate	Cape	Australia	Various	Total
1821–30	2,420,000	100,000	60,000	20,000	20,000	60,000	2,680,000
1831–40	2,650,000	150,000	100,000	30,000	60,000	80,000	3,070,000
1841–50	2,970,000	300,000	120,000	60,000	120,000	230,000	3,800,000
1851–60	3,275,000	320,000	190,000	100,000	250,000	320,000	4,455,000
1861–70	3,480,000	520,000	510,000	130,000	610,000	530,000	5,780,000
1871–80	3,490,000	880,000	1,020,000	185,000	1,330,000	990,000	7,895,000
1881–87	2,440,000	850,000	980,000	125,000	1,240,000	635,000	6,270,000
67 years	20,725,000	3,120,000	2,980,000	650,000	3,630,000	2,845,000	33,950,000

Equivalent in Washed, Tons

Period	Europe	U. States	River Plate	Cape	Australia	Various	Total
1821–30	1,820,000	60,000	20,000	10,000	10,000	40,000	1,960,000
1831–40	1,990,000	90,000	30,000	20,000	30,000	50,000	2,210,000
1841–50	2,230,000	180,000	40,000	40,000	60,000	140,000	2,690,000
1851–60	2,460,000	190,000	60,000	70,000	140,000	190,000	3,110,000
1861–70	2,610,000	310,000	170,000	90,000	330,000	320,000	3,830,000
1871–80	2,620,000	530,000	340,000	130,000	730,000	590,000	4,940,000
1881–87	1,830,000	510,000	330,000	90,000	680,000	380,000	3,820,000
67 years	15,560,000	1,870,000	990,000	450,000	1,980,000	1,710,000	22,560,000

Value, Millions £

Period	Europe	U. States	River Plate	Cape	Australia	Various	Total
1821–30	280	10	4	2	4	6	306
1831–40	307	15	6	3	10	8	349
1841–50	313	26	7	7	23	20	396
1851–60	348	28	10	12	45	30	473
1861–70	334	42	26	17	102	43	564
1871–80	297	64	46	25	184	47	663
1881–87	175	55	39	13	124	28	434
67 years	2,054	240	138	79	492	182	3,185

The movement of wool was approximately as follows :—

Period	Net Import, Tons							
	U. Kingdom	France	Germany	Austria	Belgium	Various	U. States	Total
1821–30 . .	100,000	50,000	20,000	...	20,000	10,000	...	200,000
1831–40 . .	170,000	60,000	30,000	...	30,000	20,000	20,000	330,000
1841–50 . .	240,000	200,000	50,000	...	60,000	30,000	40,000	620,000
1851–60 . .	380,000	300,000	70,000	...	90,000	40,000	100,000	980,000
1861–70 . .	580,000	650,000	150,000	...	300,000	80,000	170,000	1,930,000
1871–80 . .	820,000	1,010,000	420,000	60,000	490,000	130,000	370,000	3,300,000
1881–87 . .	680,000	880,000	600,000	90,000	310,000	120,000	360,000	3,040,000
67 years . .	2,970,000	3,150,000	1,340,000	150,000	1,300,000	430,000	1,060,000	10,400,000

Period	Net Export, Tons						
	Russia	Spain	River Plate	Cape	Australia	Various	Total
1821–30	30,000	10,000	60,000	20,000	20,000	60,000	200,000
1831–40	50,000	10,000	100,000	30,000	60,000	80,000	330,000
1841–50	70,000	20,000	120,000	60,000	120,000	230,000	620,000
1851–60	100,000	20,000	190,000	100,000	250,000	320,000	980,000
1861–70	130,000	30,000	510,000	130,000	610,000	530,000	1,940,000
1871–80	70,000	40,000	1,020,000	185,000	1,330,000	645,000	3,290,000
1881–87	110,000	40,000	980,000	125,000	1,240,000	545,000	3,040,000
67 years	560,000	170,000	2,980,000	650,000	3,630,000	2,410,000	10,400,000

The proportions of wool consumed in the country of its production, and of imported wool, were as follows :—

	1821–30	1831–40	1841–50	1851–60	1861–70	1871–80	1881–87
Not imported . . .	92.7	89.7	84.0	78.4	67.0	57.5	52.5
Imported	7.3	10.3	16.0	21.6	33.0	42.5	47.5
Total .	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The consumption in the several countries was approximately as follows :—

Tons Aggregate Wool Unwashed

	1821–30	1831–40	1841–50	1851–60	1861–70	1871–80	1881–87	Total
U. Kingdom	570,000	680,000	820,000	1,040,000	1,290,000	1,570,000	1,200,000	7,170,000
France . .	590,000	670,000	850,000	960,000	1,280,000	1,760,000	1,250,000	7,360,000
Germany .	330,000	380,000	470,000	580,000	690,000	950,000	950,000	4,350,000
Russia . .	420,000	430,000	470,000	490,000	520,000	720,000	480,000	3,530,000
Austria . .	270,000	290,000	310,000	320,000	320,000	380,000	310,000	2,200,000
Italy . . .	90,000	100,000	120,000	130,000	160,000	190,000	160,000	950,000
Spain . . .	150,000	160,000	160,000	200,000	220,000	250,000	170,000	1,310,000
Portugal .	20,000	25,000	30,000	40,000	50,000	55,000	45,000	265,000
Scandinavia	60,000	70,000	80,000	90,000	100,000	110,000	70,000	580,000
Belgium . .	35,000	45,000	75,000	100,000	310,000	500,000	320,000	1,385,000
Various . .	45,000	50,000	75,000	85,000	150,000	160,000	105,000	670,000
Europe . .	2,580,000	2,900,000	3,460,000	4,035,000	5,090,000	6,645,000	5,060,000	29,770,000
U. States .	100,000	170,000	340,000	420,000	690,000	1,250,000	1,210,000	4,180,000
Total .	2,680,000	3,070,000	3,800,000	4,455,000	5,780,000	7,895,000	6,270,000	33,950,000

Equivalent in Yarn Spun, Tons

	1821–30	1831–40	1841–50	1851–60	1861–70	1871–80	1881–87	Total
U. Kingdom	380,000	440,000	520,000	650,000	790,000	930,000	700,000	4,410,000
France . .	370,000	430,000	490,000	530,000	620,000	670,000	510,000	3,620,000
Germany .	210,000	240,000	300,000	360,000	410,000	480,000	410,000	2,410,000
Russia . .	280,000	290,000	310,000	330,000	350,000	480,000	320,000	2,360,000
Austria . .	180,000	200,000	210,000	220,000	220,000	250,000	210,000	1,490,000
Italy . . .	60,000	65,000	75,000	80,000	95,000	115,000	95,000	585,000
Spain . .	100,000	110,000	110,000	130,000	150,000	170,000	110,000	880,000
Portugal .	10,000	15,000	20,000	25,000	30,000	35,000	30,000	165,000
Scandinavia	40,000	45,000	50,000	60,000	65,000	70,000	45,000	375,000
Belgium . .	10,000	15,000	25,000	30,000	100,000	170,000	110,000	460,000
Various . .	20,000	25,000	40,000	45,000	75,000	80,000	60,000	345,000
Europe . .	1,660,000	1,875,000	2,150,000	2,460,000	2,905,000	3,450,000	2,600,000	17,100,000
U. States .	60,000	100,000	190,000	210,000	350,000	610,000	590,000	2,110,000
Total .	1,720,000	1,975,000	2,340,000	2,670,000	3,255,000	4,060,000	3,190,000	19,210,000

The value of wool consumed was approximately as follows:—

	1821-30	1831-40	1841-50	1851-60	1861-70	1871-80	1881-87	Total
Millions £ Sterling								
U. Kingdom . .	70	81	91	119	140	156	97	754
France . . .	68	79	86	96	111	113	72	625
Germany . . .	40	44	53	65	73	81	57	413
Russia	46	47	49	54	56	72	41	365
Austria . . .	30	33	33	35	34	36	25	226
Italy	11	12	13	15	17	20	12	100
Spain	16	18	17	22	24	26	14	137
Portugal . . .	2	3	4	5	6	6	4	30
Scandinavia . .	7	7	8	10	10	10	6	58
Belgium . . .	2	3	5	6	18	29	15	78
Various . . .	4	5	7	8	13	13	8	58
Europe . . .	296	332	366	435	502	562	351	2,844
U. States . . .	10	17	30	38	62	101	83	341
Total . .	306	349	396	473	564	663	434	3,185

The value of woollen manufactures produced was approximately thus:—

	1821-30	1831-40	1841-50	1851-60	1861-70	1871-80	1881-87	Total
Millions £ Sterling								
U. Kingdom . .	191	208	249	311	412	476	320	2,167
France . .	185	205	233	252	325	328	230	1,758
Germany . .	105	114	142	171	215	235	185	1,167
Russia . .	126	124	132	141	166	211	130	1,030
Austria . .	81	85	90	93	107	110	84	650
Italy . . .	27	27	32	34	46	49	34	249
Spain . . .	45	47	47	56	71	75	44	385
Portugal . .	5	7	8	11	14	15	12	72
Scandinavia .	18	19	22	25	31	30	18	163
Belgium . .	5	7	11	13	47	75	44	202
Various . .	9	11	17	19	37	35	24	152
Europe . .	797	854	983	1,126	1,471	1,639	1,125	7,995
U. States .	27	45	81	117	190	282	241	983
Total .	824	899	1,064	1,243	1,661	1,921	1,366	8,978

The consumption of woollen goods in various countries was approximately as follows:—

	1821-30	1831-40	1841-50	1851-60	1861-70	1871-80	1881-87	Total
Millions £ Sterling								
U. Kingdom	140	158	179	207	242	281	190	1,397
France . .	170	184	193	187	235	191	117	1,277
Germany . .	100	104	117	131	155	167	110	884
Russia . .	126	124	135	145	172	220	135	1,057
Austria . .	81	85	90	93	109	105	78	641
Italy . . .	27	30	37	44	67	71	49	325
Spain . . .	45	47	52	62	79	83	52	420
Portugal . .	7	9	11	14	17	18	14	90
Scandinavia .	18	20	25	30	39	52	38	222
Belgium . .	10	12	15	20	32	46	21	156
Various . .	9	12	16	20	30	35	25	147
Europe . .	733	785	870	953	1,177	1,269	829	6,616
U. States .	35	57	103	173	242	369	297	1,276
Colonies, &c.	56	57	91	117	242	283	240	1,086
Total .	824	899	1,064	1,243	1,661	1,921	1,366	8,978

The annual average consumption per inhabitant was:—

	1821-30	1831-40	1841-50	1851-60	1861-70	1871-80	1881-87
Shillings per Inhabitant, Yearly							
United Kingdom . .	12	13	14	15	16	18	15
France . . .	12	11	11	10	13	11	9
Germany . . .	7	7	7	7	8	8	7
Russia . .	5	5	5	5	5	5	4
Austria . . .	7	7	7	6	7	6	6
Italy . . .	4	4	4	4	5	5	5
Spain . . .	7	7	8	8	9	10	9
Scandinavia . .	8	7	8	9	11	12	13
Belgium . .	6	6	7	8	12	18	11
Europe . .	8	8	8	8	9	9	8
United States .	7	7	10	13	14	17	15

UNITED KINGDOM

The woollen industry dates its importance from the reign of Edward III., who introduced foreign workmen. Gregory King in 1690, estimated the value of woollen manufactures at eight millions sterling, of which one-fourth were exported; he valued the wool at two millions sterling. The woollen industry approximately was thus:—

Year	British Wool	Imported	Total Wool	Yarn Spun	Exported	Yarn Consumed	Value of Output, £
Millions of Lbs.							
1780 . . .	80	3	83	58	...	58	16,600,000
1800 . . .	90	10	100	68	...	75	18,000,000
1820 . . .	100	10	110	75	...	80	18,700,000
1830 . . .	115	32	147	96	2	94	19,400,000
1840 . . .	120	48	168	108	4	104	22,100,000
1850 . . .	141	60	201	129	14	115	27,700,000
1860 . . .	144	104	248	153	28	125	34,600,000
1870 . . .	155	171	326	194	35	159	47,800,000
1880 . . .	159	226	385	224	26	198	47,500,000
1888 . . .	136	300	436	245	40	205	43,900,000

The output was composed as follows:—

Year	Manufactures, £			Exported Yarn, £	Total Output, £
	Home Use	Export	Total		
1780	14,000,000	2,600,000	16,600,000	...	16,600,000
1800	11,100,000	6,900,000	18,000,000	...	18,000,000
1820	13,100,000	5,600,000	18,700,000	...	18,700,000
1830	14,500,000	4,700,000	19,200,000	200,000	19,400,000
1840	16,300,000	5,300,000	21,600,000	500,000	22,100,000
1850	17,600,000	8,600,000	26,200,000	1,500,000	27,700,000
1860	18,600,000	12,200,000	30,800,000	3,800,000	34,600,000
1870	21,100,000	21,700,000	42,800,000	5,000,000	47,800,000
1880	26,900,000	17,300,000	44,200,000	3,300,000	47,500,000
1888	19,800,000	20,000,000	39,800,000	4,100,000	43,900,000

The business of sixty-seven years may be stated thus:—

Period	Tons		Value, Millions £		
	Wool	Yarn Spun	Wool	Manu-factures	Net Result
1821-30 . .	570,000	380,000	70	191	121
1831-40 . .	680,000	440,000	81	208	127
1841-50 . .	820,000	520,000	91	244	153
1851-60 . .	1,040,000	650,000	119	311	192
1861-70 . .	1,290,000	790,000	140	412	272
1871-80 . .	1,570,000	930,000	156	476	320
1881-87 . .	1,200,000	700,000	97	320	223
67 years . .	7,170,000	4,410,000	754	2,162	1,408

The quantity of wool consumed was approximately as follows :—

Period	Tons Aggregate		
	British	Foreign	Total
1821–40 . . .	980,000	270,000	1,250,000
1841–60 . . .	1,180,000	680,000	1,860,000
1861–70 . . .	670,000	620,000	1,290,000
1871–80 . . .	690,000	880,000	1,570,000
1881–87 . . .	390,000	810,000	1,200,000
67 years . . .	3,910,000	3,260,000	7,170,000

In 1774 Campbell estimated woollen manufactures at 12 millions sterling, in 1815 Stevenson at 18 millions, and in 1837 M'Culloch at 22½ millions.

Notwithstanding the magnitude of this industry, Great Britain imports large quantities of foreign goods. The following table shows the value of the total consumption of woollen merchandise :—

Period	Annual Consumption		
	British, £	Imported, £	Total, £
1851–60 . . .	18,100,000	1,100,000	19,200,000
1861–70 . . .	21,300,000	2,050,000	23,350,000
1871–80 . . .	21,600,000	5,020,000	26,620,000
1881–88 . . .	22,600,000	7,100,000	29,700,000

The following table shows the surplus of exports since 1850 :—

Period	Millions £ Woollen Merchandise		
	Imports	Exports	Surplus Exports
1851–60 . . .	11	131	120
1861–70 . . .	21	237	116
1871–80 . . .	50	260	210
1881–88 . . .	57	185	128
38 years . . .	139	813	574

Since 1881 one-tenth of the imported woollen goods has been re-shipped to the Colonies or elsewhere. This is meantime balanced by the importation of rags averaging £600,000 yearly value, not included in the above imports.

The imports and exports of woollen yarn were :—

Period	Millions of Lbs. Aggregate		
	Imported	Exported	Surplus Exports
1851–60 . . .	...	203	203
1861–70 . . .	63	333	270
1871–80 . . .	122	334	212
1881–88 . . .	118	306	188
38 years . . .	303	1,176	873

The statistics of woollen-factories are as follows :—

Year	Factories	Operatives	Spindles	Looms
1838 . . .	1,313	71,300	...	5,000
1850 . . .	1,998	154,000	2,500,000	42,000
1870 . . .	2,579	239,000	4,950,000	113,000
1878 . . .	2,410	271,000	6,310,000	146,000
1885 . . .	2,751	282,000	6,140,000	140,000

The operatives were as follows :—

	1870	1878	1885
Men	96,000	101,000	113,000
Women . . .	119,000	139,000	145,000
Boys	12,000	15,000	12,000
Girls	12,000	16,000	12,000
Total . .	239,000	271,000	282,000

FRANCE

The first machinery for spinning wool was erected at Rheims in 1809, and that city now contains 330 factories. France has at present 2424 woollen factories, of which 740 are worked by steam ; spindles 3,100,000, power-looms 41,000. The industry since 1820 shows thus approximately :—

Year	Millions of Lbs.				Value of Output, £
	French Wool	Imported	Total Wool	Yarn Spun	
1820 . .	116	11	127	80	19,800,000
1830 . .	130	15	145	96	20,000,000
1840 . .	144	30	174	108	22,000,000
1860 . .	150	121	271	136	31,200,000
1870 . .	133	194	327	147	35,800,000
1880 . .	117	255	372	155	33,300,000
1887 . .	126	294	420	172	30,800,000

The value of goods exported, and of those kept for home consumption, were approximately as follows :—

Year	Home Use, £	Exported, £	Total, £
1820 . . .	18,100,000	1,700,000	19,800,000
1830 . . .	18,800,000	1,200,000	20,000,000
1840 . . .	19,000,000	3,000,000	22,000,000
1860 . . .	23,700,000	7,500,000	31,200,000
1870 . . .	25,200,000	10,600,000	35,800,000
1880 . . .	16,500,000	16,800,000	33,300,000
1887 . . .	15,200,000	15,600,000	30,800,000

The business of sixty-seven years may be stated thus :—

Period	Tons		Value, Millions £		
	Wool	Spun Yarn	Wool	Manu-factures	Net Results
1821–30	590,000	370,000	68	185	117
1831–40	670,000	430,000	79	205	126
1841–50	850,000	490,000	86	233	147
1851–60	960,000	530,000	96	252	156
1861–70	1,280,000	620,000	111	325	214
1871–80	1,760,000	670,000	113	328	215
1881–87	1,250,000	510,000	72	230	158
67 years	7,360,000	3,620,000	625	1,758	1,133

France, like Great Britain, consumes a considerable quantity of imported woollen goods. The total consumption since 1860 was :—

Period	Millions £ Sterling			Annual Average, £
	French	Imported	Total	
1861–70 . .	245	15	260	26,600,000
1871–80 . .	209	28	237	23,700,000
1881–87 . .	111	22	133	19,000,000
27 years . .	565	65	630	23,300,000

GERMANY

Woollen manufactures were of minor importance at the beginning of the century. Oddy valued the product of all Prussian woollen-mills in 1800 at £1,700,000 sterling.

The woollen industry of Germany since 1820 is summed up approximately as follows :—

Period	Tons		Value, Millions £		
	Wool	Yarn Spun	Wool	Manu-factures	Net
1821-30 . .	330,000	210,000	40	105	65
1831-40 . .	380,000	240,000	44	114	70
1841-50 . .	470,000	300,000	53	142	89
1851-60 . .	580,000	360,000	65	171	106
1861-70 . .	690,000	410,000	73	215	142
1871-80 . .	950,000	480,000	81	235	154
1881-87 . .	950,000	410,000	57	185	128
67 years . .	4,350,000	2,410,000	413	1,167	754

A statement published in 1878 showed that the woollen-mills of Germany counted 2,000,000 spindles, the annual output being estimated at 26 millions sterling. Germany consumes imported woollen goods to the value of £500,000 per annum. The output of German woollen-factories from 1871 to 1887 is accounted for thus, approximately :—

Period	Millions £			Average Home Use, £
	Home Use	Exported	Total Output	
1871-80 . .	167	68	235	16,700,000
1881-87 . .	110	75	185	15,700,000
17 years . .	277	143	420	16,300,000

RUSSIA

The business of sixty-seven years may be summed up thus :—

Period	Tons Wool Consumed	Tons Yarn Spun	Value, Millions £		
			Wool	Manu-factures	Net
1821-30 . .	420,000	280,000	46	126	80
1831-40 . .	430,000	290,000	47	124	77
1841-50 . .	470,000	310,000	49	132	83
1851-60 . .	490,000	330,000	54	141	87
1861-70 . .	520,000	350,000	56	166	110
1871-80 . .	720,000	480,000	72	211	139
1881-87 . .	480,000	320,000	41	130	89
67 years . .	3,530,000	2,360,000	365	1,030	665

Russia had a surplus of wool, and exported in the above period approximately the following quantity :—

Period			Tons	Lbs. Yearly
1821-40	.	.	60,000	6,600,000
1841-70	.	.	330,000	24,000,000
1871-87	.	.	260,000	35,000,000
67 years	.	.	650,000	...

In 1824 there were 324 factories, and in 1866 the number had risen to 1831, with 105,000 operatives, who turned out goods valued at 18 millions sterling.

The importation of woollen manufactures from abroad was as follows, viz. :—

Year	£	Year	£	Year	£
1860	460,000	1870	970,000	1880	1,210,000
1865	400,000	1875	1,600,000	1887	270,000

It appears that Russia is now almost able to supply her own needs.

AUSTRIA

The business of sixty-seven years was approximately as follows :—

Period	Tons Wool Consumed	Tons Yarn Spun	Value, Millions £		
			Wool	Manu-facture	Net
1821-30 . .	270,000	180,000	30	81	51
1831-40 . .	290,000	200,000	33	85	52
1841-50 . .	310,000	210,000	33	90	57
1851-60 . .	320,000	220,000	35	93	58
1861-70 . .	320,000	220,000	34	107	73
1871-80 . .	380,000	250,000	36	110	74
1881-87 . .	310,000	210,000	25	84	59
67 years . .	2,200,000	1,490,000	226	650	424

In 1840 the woollen-mills of the Empire counted 100,000 operatives. Statistics for 1880 showed 657 mills, 62,000 operatives, 11,000 power-looms, 550,000 spindles, moved by 14,000 horse-power. Spallart valued the product at £12,300,000 in 1884. The disposal of the manufactures was as follows :—

Period	Yearly Average		
	Home Con-sumption, £	Export, £	Total, £
1841-60 . . .	9,100,000	...	9,100,000
1861-70 . . .	9,100,000	1,600,000	10,700,000
1871-80 . . .	8,800,000	2,200,000	11,000,000
1881-87 . . .	9,700,000	2,300,000	12,000,000

At the same time there has been a consumption of foreign imported goods.

The total value of woollen goods consumed since 1860 has been :—

Period	Millions £			Annual Average, £
	Austrian	Imported	Total	
1861-70 . .	91	18	109	10,900,000
1871-80 . .	88	17	105	10,500,000
1881-87 . .	68	10	78	11,100,000
27 years . .	247	45	292	...

ITALY

In 1860 the woollen-mills depended almost wholly on native wool, but now almost one-half is imported. The business of sixty-seven years may be estimated approximately thus :—

Period	Tons		Value, Millions £		
	Wool	Yarn Spun	Wool	Manu-facture	Net
1821-30 . .	90,000	60,000	11	27	16
1831-40 . .	100,000	65,000	12	27	15
1841-50 . .	120,000	75,000	13	32	19
1851-60 . .	130,000	80,000	15	34	19
1861-70 . .	160,000	95,000	17	46	29
1871-80 . .	190,000	115,000	20	49	29
1881-87 . .	160,000	95,000	12	34	22
67 years . .	950,000	585,000	100	249	149

The consumption of wool was approximately as follows :—

| Period | Tons | | | Lbs. Yearly |
	Italian	Foreign	Total	
1821–60 . .	370,000	70,000	440,000	24,000,000
1861–80 . .	230,000	120,000	350,000	39,000,000
1881–87 . .	90,000	70,000	100,000	52,000,000
67 years . .	690,000	260,000	950,000	...

Meantime the mills have been wholly insufficient to supply the needs of the country.

The total value of woollen goods consumed in Italy since 1860 was as follows :—

| Period | Millions £ Sterling Aggregate | | | Annual Average, £ |
	Home-Made	Imported	Total	
1861–70 . .	46	21	67	6,700,000
1871–80 . .	49	22	71	7,100,000
1881–87 . .	34	15	49	7,000,000
27 years . .	129	58	187	6,900,000

It appears that not only 40 per cent. of the wool used in the country is of foreign growth, but also that one-third of the woollen goods is imported. In 1840 the kingdom of Sardinia had 62 woollen-mills, employing 5400 hands. In 1877 the kingdom of Italy counted in its woollen-factories 25,000 operatives, with 6600 looms and 305,000 spindles, the mills representing an aggregate of 7300 horse-power, of which 6200 water, the rest steam.

SPAIN

The business of sixty-seven years may be estimated approximately thus :—

| Period | Tons Wool Consumed | Tons Yarn Spun | Value, Millions £ | | |
			Wool	Manu- facture	Net
1821–30 . .	150,000	100,000	16	45	29
1831–40 . .	160,000	110,000	18	47	29
1841–50 . .	160,000	110,000	17	47	30
1851–60 . .	200,000	130,000	22	56	34
1861–70 . .	220,000	150,000	24	71	47
1871–80 . .	250,000	170,000	20	75	49
1881–87 . .	170,000	110,000	14	44	30
67 years . .	1,310,000	880,000	137	385	248

In spite of high protective duties, Spain is forced to obtain woollen manufactures in large quantities from abroad.

The consumption of Spanish and imported woollen goods since 1860 has been as follows :—

| Period | Millions £ Sterling Aggregate | | | Annual Average, £ |
	Spanish	Imported	Total	
1861–70 . .	71	8	79	7,900,000
1871–80 . .	75	8	83	8,300,000
1881–87 . .	44	8	52	7,400,000
27 years . .	190	24	214	...

The export of Spanish wool has been as follows :—

		Tons
1861–80	. . . . . .	70.000
1881–87	. . . . . .	35,000
27 years	. . . . . .	105,000

The mills are unable to consume even the wool grown in Spain ; they contain 7000 looms and 25,000 operatives.

PORTUGAL

The business of sixty-seven years was approximately as follows :—

| Period | Tons Wool Consumed | Tons Yarn Spun | Value, Millions £ | | |
			Wool	Manu- facture	Net
1821–30 . .	20,000	10,000	2	5	3
1831–40 . .	25,000	15,000	3	7	4
1841–50 . .	30,000	20,000	4	8	4
1851–60 . .	40,000	25,000	5	11	6
1861–70 . .	50,000	30,000	6	14	8
1871–80 . .	55,000	35,000	6	15	9
1881–87 . .	45,000	30,000	4	12	8
67 years . .	265,000	165,000	30	72	42

Two-thirds of the wool used is native, one-third imported. Woollen goods are also imported to the value of £300,000, the total consumption of this class of goods being therefore nearly two millions sterling yearly.

SCANDINAVIA

The woollen industries of the three northern kingdoms collectively may be summed up approximately thus :—

| Period | Tons Wool Consumed | Tons Yarn Spun | Value, Millions £ | | |
			Wool	Manu- facture	Net
1821–30 . .	60,000	40,000	7	18	11
1831–40 . .	70,000	45,000	7	19	12
1841–50 . .	80,000	50,000	8	22	14
1851–60 . .	90,000	60,000	10	25	15
1861–70 . .	100,000	65,000	10	31	21
1871–80 . .	110,000	70,000	10	30	20
1881–87 . .	70,000	45,000	6	18	12
67 years . .	580,000	375,000	58	163	105

Denmark exports, and Sweden and Norway import wool. The consumption of home-made and imported goods was as follows :—

| Period | Yearly Value, £ Sterling | | |
	Home-Made	Imported	Total
1861–70 . .	3,100,000	800,000	3,900,000
1871–80 . .	3,000,000	2,200,000	5,200,000
1881–87 . .	2,600,000	2,850,000	5,450,000

The importations of woollen goods into the three kingdoms were as follows :—

| | Yearly Value, £ | | |
	1861–70	1871–80	1881–87
Sweden . .	220,000	900,000	1,200,000
Norway . .	100,000	500,000	600,000
Denmark . .	500,000	800,000	1,050,000
Total .	820,000	2,200,000	2,850,000

BELGIUM

The business of 67 years may be summed up approximately as follows :—

Period	Tons Wool Consumed	Tons Yarn Spun	Value, Millions £		
			Wool	Manufactures	Net
1821–30 . .	35,000	10,000	2	5	3
1831–40 . .	45,000	15,000	3	7	4
1841–50 . .	75,000	25,000	5	11	6
1851–60 . .	100,000	30,000	6	13	7
1861–70 . .	310,000	100,000	18	47	29
1871–80 . .	500,000	170,000	29	75	46
1881–87 . .	320,000	110,000	15	44	29
67 years . .	1,385,000	460,000	78	202	124

The wool is almost all imported, only 2 per cent. being Belgian. It is not, however, all made into stuffs, about one-fifth being re-exported as woollen yarn. The imports and exports of woollen goods, including yarn, showed :—

Period	Annual Average, £		
	Imports	Exports	Surplus Exports
1861–70 . .	800,000	2,300,000	1,500,000
1871–80 . .	900,000	3,800,000	2,900,000
1881–87 . .	800,000	3,300,000	2,500,000

The output of the mills and the home consumption were :—

Period	Annual Average, £		
	Output	Net Export	Consumption
1861–70 . .	4,700,000	1,500,000	3,200,000
1871–80 . .	7,500,000	2,900,000	4,600,000
1881–87 . .	6,300,000	3,300,000	3,000,000

UNITED STATES

The wool consumed was approximately as follows :—

Period	Tons		
	American	Imported	Total
1821–40 . .	250,000	20,000	270,000
1841–60 . .	620,000	140,000	760,000
1861–80 . .	1,400,000	540,000	1,940,000
1881–87 . .	850,000	360,000	1,210,000
67 years . .	3,120,000	1,060,000	4,180,000

In 1840 there were 1420 mills, with 21,000 operatives, the number of the latter reaching 39,000 in 1850. The Census of 1880 showed 2689 mills, with a capital of 33 millions sterling, which had 162,000 operatives and two million spindles.

The business of sixty-seven years was approximately as follows :—

Period	Tons Wool Consumed	Tons Yarn Spun	Value, Millions £		
			Wool	Manufactures	Net
1821–30 . .	100,000	60,000	10	27	17
1831–40 . .	170,900	100,000	17	45	28
1841–50 . .	340,000	190,000	30	81	51
1851–60 . .	420,000	210,0c0	38	117	79
1861–70 . .	690,000	350,000	62	190	128
1871–80 . .	1,250,000	610,000	101	282	181
1881–87 . .	1,210,000	590,000	83	241	158
67 years . .	4,180,000	2,110,000	341	983	642

The consumption of woollen goods since 1840 has been approximately as follows :—

Period	Value, Millions £		Aggregate	Yearly Average, £	Shillings per Inhab.
	American	Imported	Total		
1841–50	81	22	103	10,300,000	10.1
1851–60	117	56	173	17,300,000	12.5
1861–70	190	52	242	24,200,000	14.0
1871–80	282	87	369	36,900,000	16.6
1881–87	241	56	297	42,400,000	15.2
47 years	911	273	1,184	...	...

INDIA

In December 1889 there were four woollen mills, representing an aggregate capital of £1,200,000, with 7000 spindles and 300 looms. The consumption of wool is not stated, nor the value of products.

WORK
Foot-Tons of Energy

Walking 1 mile	17½
Walking 4 miles	70
Carrying 60 lbs. 1 mile . . .	25
Carrying 60 lbs. 4 miles	100
Pedlar's day's work	303
Convict's day's work	310
Dock labourer's day's work . . .	325
Pile-driving	332
Pavior	352
Turning a winch	374
Man's ordinary work	300
Very hard ditto	400

Y.

YACHTS

The number in Great Britain has been as follows :—

Year		Clubs	Yachts	Year		Clubs	Yachts
1853	. .	18	1,046	1873	. .	40	2,805
1863	. .	18	1,348	1883	. .	55	4,030

France has 9370 yachts, averaging three tons, and £61 in value : of the whole number, only 103 are steamers.

Lord Brassey's *Sunbeam* circumnavigated the globe in eleven months, from July 1876 to May 1877, making 14,465 miles by steam and 20,312 under sail, in all 34,777 miles, averaging 105 miles a day, including time in port. She was 157 feet long, 531 tons, 70 horse-power, and consumed 4 tons of coal daily, steaming 10 knots an hour. Mr. Lambert's *Wanderer* was 23 months making the tour of the globe (1880–82), but only 280 days actually at sea, having made 48,490 miles between steam and sail.

YARN

Exports of British yarn were as follows :—

Year	Million Lbs.				Value, £
	Cotton	Woollen	Linen and Jute	Total	
1821	22	...	...	22	2,306,000
1831	64	2	1	67	4,270,000
1841	119	4	18	141	8,362,000
1851	144	14	19	177	9,071,000
1861	178	28	28	234	14,468,000
1871	194	44	50	298	23,641,000
1881	255	30	36	321	17,693,000
1889	252	45	48	345	17,300,000

The prices of yarn at various dates were in pence per pound :—

Year				Cotton	Woollen	Linen
1831	.	.	.	22	26	19
1841	.	.	.	14	29	12
1851	.	.	.	12	25	12
1861	.	.	.	13	30	14
1871	.	.	.	19	34	15
1881	.	.	.	13	26	14
1889	.	.	.	11	23	15

The consumption of imported yarn in various countries in 1888 was as follows :—

			Millions of Lbs.			
			Cotton	Woollen	Linen, &c.	Total
France	.	.	20	...	...	20
Germany	.	.	34	27	...	61
Russia	.	.	9	...	...	9
Austria	.	.	22	9	...	31
Italy	.	.	8	...	9	17
Spain	.	.	1	...	8	9
Sweden	.	.	3	3	...	6
Holland	.	.	20	1	...	21
Roumania	.	.	9	...	...	9
Egypt	.	.	3	...	...	3
China	.	.	90	...	...	90
Japan	.	.	64	...	...	64
Total	.		283	40	17	340

Belgium and Switzerland produce more yarn than they require, the former exporting about 30 million lbs., the latter 16 million lbs. yearly.

Z.

ZINC

The production of zinc was as follows :—

				Tons	
				1880	1888
Great Britain	.	.	.	22,000	27,000
Belgium	.	.	.	99,000	133,000
Prussia	.	.	.	64,000	83,000
United States	.	.	.	21,000	50,000
Spain, &c.	.	.	.	22,000	24,000
Total	.	.	.	228,000	317,000

The zinc industry of Great Britain is shown thus :—

Year	Tons					Value per Ton, £
	Production	Imported	Total	Exported	Home Use	
1831	700	3,800	4,500	3,100	1,400	14
1851	3,900	18,600	22,500	4,500	18,000	21
1871	4,960	20,930	25,890	8,060	17,830	18
1881	15,950	46,100	62,050	10,700	51,350	15
1889	9,400	56,400	65,800	7,700	58,100	15

In the previous table Great Britain is credited with a production of 27,000 tons, but this includes 18,000 tons extracted from foreign ores imported. Not all the zinc imported is metallic, a large portion being mineral ore. Belgian ore gives 18 per cent. of metal, German 16, British 28 per cent. The production of zinc in the world has trebled since 1870. See *Mining*.

APPENDIX.

BATTLES

Date	Battle	Won by	Lost by	Engaged		Losses of	
				Victors	Vanquished	Victors	Vanquished
1704	Blenheim	English . .	French . .	52,000	56,000	13,000	30,000
1513	Flodden	English . .	Scotch . . .	32,000	30,000	4,000	9,000
1745	Fontenoy	French . .	English . .	60,000	60,000	7,000	7,000
1800	Hohenlinden . . .	French .	Austrians . .	70,000	60,000	5,000	17,000

BANKING

The average and the maximum rates per cent. for money in banks and in the open market in 1890 were as follows :—

	Average		Maximum	
	Bank	Market	Bank	Market
London . . .	4.6	3.7	6.0	5.7
Paris . . .	3.0	2.6	3.0	3.0
Berlin . . .	4.4	3.7	5.5	4.8
Hamburg . . .	4.4	3.7	5.5	4.8
Vienna . . .	4.5	4.1	5.5	5.5
Amsterdam . .	2.8	2.5	4.5	3.7
Brussels . .	3.2	2.9	4.0	3.7
St. Petersburg . .	5.5	5.2	5.5	6.0

The rates of exchange in 1890 were :—

London on Paris . .	.	25.31 to 25.62
London on Hamburg .	.	20.54 to 20.77
London on Calcutta .	.	16.75 to 20.75
New York on London .	.	4.80 to 4.85
Hong Kong on London	.	37 to 46
Silver, price per oz. .	.	44 to 54

BIRTHS

Illegitimate births in 1887–88 were as follows :—

Per 1,000 Births

England . .	46	Italy . . .	75	Belgium . .	93
Scotland . .	83	Spain . . .	54	Switzerland .	48
Ireland . .	29	Sweden . .	149	Greece . . .	16
France . .	82	Norway . .	79	Roumania .	50
Germany . .	95	Denmark . .	100	Australia . .	40
Austria . .	149	Holland . .	32		
Antwerp . .	129	Ghent . . .	144	Paris . . .	268
Berlin . . .	154	Hague . . .	99	Prague . .	439
Breslau . .	186	Hamburg . .	138	Rome . . .	194
Bucharest . .	175	Leipzig . .	211	Rotterdam .	70
Budapesth .	299	Liege . . .	174	St. Petersburg	236
Christiania .	162	Milan . . .	204	Stockholm .	396
Cologne . .	124	Moscow . .	300	Trieste . . .	211
Copenhagen .	279	Munich . .	439	Turin . . .	132
Dresden . .	208	Naples . .	86	Venice . . .	189
Frankfort . .	132	Palermo . .	101	Vienna . .	449

CAPITAL

The *Economist* gives the amount of new capital created, and that of actual money calls, thus :—

Year	Millions £ Sterling	
	New Capital	Money Calls
1881	190	115
1882	145	95
1883	81	77
1884	109	91
1885	78	78
1886	102	87
1887	111	94
1888	160	137
1889	207	168
1890	143	141
Ten years, .	1,326	1,083

CHARITIES

In 1883 Switzerland had hospitals containing 17,800 beds, or 6 per 1,000 population, the highest ratio in Europe.

In December 1890, according to Dr. Mouat, London had 111 hospitals and asylums, with 24,037 beds, distributed thus :—

Parish	Population	Beds	Beds per 10,000 Pop.
Lambeth . . .	254,000	2,185	86
Kensington . . .	163,000	1,667	102
Bow . . .	37,000	1,641	444
Chelsea . . .	88,000	1,511	172
Islington . . .	283,000	1,492	53
Whitechapel . . .	31,000	1,489	480
Wandsworth . . .	28,000	1,190	425
St. Pancras . . .	236,000	988	42
Shoreditch . . .	127,000	987	78
Camberwell . . .	187,000	873	46
Hackney . . .	164,000	864	53
Various . . .	1,782,000	9,150	51
Total . . .	3,380,000	24,037	71

CHEESE

The exportation of cheese from Switzerland has been as follows :—

Year						Tons
1851	.	.	.	.	.	5,200
1871	.	.	.	.	.	20,700
1890	.	.	.	.	.	26,000

COMMERCE

The trade of the United Kingdom in 1890 was :—

Imports, £			Exports, £	
Grain . .	53,050,000	Cottons .	.	74,430,000
Meat, butter, &c.	51,200,000	Woollens .	.	24,510,000
Cotton .	42,760,000	Silks .	.	2,710,000
Wool .	28,590,000	Linens .	.	6,580,000
Silks . .	14,030,000	Clothing .	.	7,150,000
Hemp and jute .	7,870,000	Iron . .	.	31,580,000
Flax . .	2,860,000	Copper .	.	5,060,000
Metals .	23,710,000	Machinery	.	16,410,000
Timber .	17,130,000	Hardware.	.	2,770,000
Seeds .	6,870,000	Coal . .	.	19,020,000
Sugar .	18,260,000	Groceries .	.	4,230,000
Tea . .	10,000,000	Pottery .	.	3,110,000
Coffee .	4,060,000	Leather .	.	4,280,000
Fruits .	6,720,000	Sundries .	.	61,700,000
Wines .	8,020,000	British .	.	263,540,000
Tobacco .	3,540,000	Colonial .	.	66,660,000
Sundries .	122,220,000			
		Total	.	330,200,000
Total .	420,890,000			

CRIME

The United States Census for 1890 showed the ratios of convicts in penitentiary thus :—

Whites . .	675	Males . .	961	Americans .	756
Coloured .	325	Females .	39	Settlers . .	244
Total . .	1,000	Total . .	1,000	Total . .	1,000

DISEASE

In 1885 the cholera in Spain attacked 233,500 persons, of whom 82,600 died, say 36 per cent.

DOCKS

In 1890 among the most remarkable were :—

	Length, Ft.	Breadth, Ft.	Depth, Ft.
Albert, London .	6,650	490	30
East Bute, Cardiff .	4,300	400	32
Northumberland, Tyne .	3,700	600	24
Albert, Kingstown .	3,350	320	28
Kattendyk, Antwerp .	3,000	500	...

The Langton Dock, Liverpool, has an area of 18 acres, with a depth of 29 feet. The quays at Hamburg have a length of three miles.

EARTH

Mr. Ravenstein estimates the fertile and the unproductive areas as follows :—

	Square Miles		
	Fertile	Unproductive	Total
Europe . . .	2,888,000	667,000	3,555,000
Asia	9,280,000	5,430,000	14,710,000
Africa . . .	5,760,000	5,754,000	11,514,000
Australia . .	1,167,000	2,121,000	3,288,000
North America	4,946,000	1,500,000	6,446,000
South America	4,228,000	2,609,000	6,837,000
Total . .	28,269,000	18,081,000	46,350,000

EDUCATION

In 1891 the Board of Education published the following report on the schools of England and Wales for the year 1890 :—

	Accommo-dation	Number on Register	Average Attendance
Anglican . . .	2,651,000	2,168,000	1,681,000
Roman Catholic .	342,000	256,000	193,000
Wesleyan . . .	215,000	175,000	132,000
Various . . .	416,000	330,000	255,000
Board	1,915,000	1,876,000	1,457,000
Total . .	5,539,000	4,805,000	3,718,000

The totals of average attendance for voluntary and Board schools were :—

	1888	1889	1890
Voluntary . . .	2,237,000	2,258,000	2,261,000
Board	1,378,000	1,425,000	1,457,000
Total . .	3,615,000	3,683,000	3,718,000

The contributions for voluntary schools were :—

	1888	1889	1890
	£	£	£
Anglican . . .	582,000	582,000	590,000
Roman Catholic .	66,000	67,000	71,000
Wesleyan . . .	16,000	17,000	17,000
Various . . .	82,000	83,000	80,000
Total . .	746,000	749,000	758,000

The sums expended on voluntary schools were :—

	1811-70	1871-90	Total
	£	£	£
Building . . .	6,470,000	6,930,000	13,400,000
Maintenance . .	8,680,000	12,460,000	21,140,000
Total . .	15,150,000	19,390,000	34,540,000

ENGINEERING

The cost of pumping out Lake Haarlem was £1,080,000. The land, 45,000 acres, was sold for £780,000, say £17 per acre. Net cost, £300,000.

FAMINES

A parliamentary blue-book, issued in 1885, recounts the following famines in India :—

Year			Locality			Deaths
1813 .	.	.	Rajpoot .	.	.	2,000,000
1837 .	.	.	Upper India .	.	.	800,000
1860 .	.	.	Punjaub .	.	.	500,000
1866 .	.	.	Orissa .	.	.	1,300,000
1866 .	.	.	Madras, &c. .	.	.	585,000
1868 .	.	.	Rajpoot .	.	.	1,250,000
1868 .	.	.	Punjaub, &c. .	.	.	1,450,000
1877 .	.	.	Bombay .	.	.	800,000
1878 .	.	.	Madras .	.	.	3,500,000
1878 .	.	.	Oude, &c. .	.	.	2,436,000
			Total	.	.	14,621,000

FINANCE

The revenue of the United Kingdom for the year ending December 31, 1890, compares with 1889 thus :—

	1889	1890
	£	£
Customs . . .	20,420,000	19,820,000
Excise . . .	24,630,000	25,340,000
Stamps . . .	12,770,000	13,580,000
Property-Tax . .	12,480,000	12,870,000
Post-Office . .	11,720,000	12,100,000
Sundries . . .	6,940,000	6,820,000
Total . .	88,960,000	90,530,000

FIRES

The fire-brigades of large cities compare in 1890 :—

Cities	Area, Sq. Miles	Firemen	Annual Cost, £
London . .	121	576	103,000
Paris . .	30	1,742	81,000
Berlin . .	29	765	69,000
Vienna . .	21	180	20,000
New York . .	42	826	336,000
Boston . .	37	663	96,000
Chicago . .	36	397	109,000

Captain Shaw's report for 1890 shows that there were 2555 fires in London that year, 44 of which were attended with loss of life. The firemen rescued 182 persons, but of these 31 afterwards died in hospital. There were 30 persons burned in the ruins, making the total loss of life 61. The fire-brigade made 33,261 journeys; distance run, 65,455 miles. The quantity of water used by the firemen was 21 million gallons. Two firemen lost their lives, and 105 were injured. The London fire-brigade counts 790 men, 133 horses, 224 fire-escapes, 47 steam and 95 hand engines, and 33 miles of hose. The fires of 1890 were classified thus :—

Cause		Occupation	
Lamps	500	Private houses . .	632
Gas	219	Lodgings . . .	428
Sparks . . .	187	Liquor shops . .	57
Chimneys . . .	179	Grocers . . .	46
Candles . . .	163	Oilmen . . .	43
Children . . .	105	Drapers . . .	39
Various . . .	1,202	Various . . .	1,310
Total . . .	2,555	Total . . .	2,555

The fires of 10 years according to days of the week showed :—

Sunday	3,040
Monday	3,002
Tuesday	3,203
Wednesday	3,184
Thursday	3,186
Friday	3,005
Saturday	3,393
	22,013

Sunday, Monday, and Friday had less than the average.

FISHERIES

In 1887 the following statement was published :—

Flag	Vessels	Fishermen	Take, £
Norway . . .	31,600	122,800	1,000,000
Holland . . .	...	...	3,000,000
France . . .	23,900	135,200	3,400,000
Canada . . .	29,200	60,000	3,800,000

FLOODS

Besides those mentioned at p. 282 were the following :—

Date	Locality	Lives Lost
1617 . . .	Catalonia, Spain	15,000
1788 . . .	Punjaub, India	15,000
1813 . . .	Poland	9,000
1824 . . .	Cronstadt, Russia	10,000
1887 . . .	Honan, China	2,000,000
1889 . . .	Johnstown, Pennsylvania	10,000

FOOD

Frankland says a man requires any one of the following items to support life daily :—

7 bottles of stout	3½ lbs. lean beef
9 oz. beef fat	6 lbs. fish
11 oz. butter	10 lbs. carrots
14 oz. cheese	2 lbs. bread
21 oz. rice	2 lbs. boiled egg
21 oz. peameal	12 lbs. cabbage

At p. 286 the value of liquor consumed in Russia is estimated at £42,000,000. The legal consumption, as at p. 59, is only £23,000,000, but the latter does not include some 150 or 200 million gallons of illicit spirits.

FOREST

In 1887 Austria proper exported 2,100,000 tons of timber in various conditions valued at £5,100,000.

FORTIFICATIONS

The new forts at Antwerp cost £3,000,000 ; at Strasburg, £4,000,000 sterling.

FRICTION

Rennie's table is as follows :—

Steel on ice	.014	Marble on marble	.	.160
Ice on ice .	.028	Leather on iron .	.	.250
Brass on iron	.135	Granite on granite	.	.300
Steel on steel	.146	Iron on oak	.	.620

FRUIT

In 1890 Great Britain imported as follows :—

	Tons	Value £	£ per Ton
Apples . .	64,000	780,000	12.2
Oranges . .	144,000	1,760,000	12.1
Various . .	90,000	1,810,000	20.1
Total . .	298,000	4,350,000	14.5

GLASS

In 1880 the factories in the United States employed 24,000 hands, who turned out manufactures worth £4,300,000. The glass manufactures of Belgium are valued at £2,000,000 sterling per annum.

GOLD AND SILVER

The price of silver fluctuated as follows in the last five years :—

Year	Pence per Oz.			1 oz. Silver to 1 oz. Gold
	Highest	Lowest	Average	
1886 . . .	47	42	46	20.3
1887 . . .	47	43	45	20.8
1888 . . .	45	42	43	21.8
1889 . . .	45	42	43	21.8
1890 . . .	55	44	48	19.4

The current of bullion into and from the United Kingdom in the last two years showed thus :—

Imported from	1889			1890		
	Gold, £	Silver, £	Total, £	Gold, £	Silver, £	Total, £
United States . . .	2,570,000	3,980,000	6,550,000	2,590,000	4,060,000	6,650,000
Spanish America . .	2,800,000	2,150,000	4,950,000	4,410,000	2,530,000	6,940,000
Australia	4,170,000	30,000	4,200,000	2,100,000	200,000	2,300,000
France	1,670,000	2,280,000	3,950,000	4,850,000	2,020,000	6,870,000
The East	1,330,000	150,000	1,480,000	1,100,000	240,000	1,340,000
Various	5,150,000	590,000	5,740,000	8,520,000	1,340,000	9,860,000
Total . .	17,690,000	9,180,000	26,870,000	23,570,000	10,390,000	33,960,000
Exported to						
United States . . .	10,000	30,000	40,000	1,010,000	630,000	1,640,000
Spanish America . .	4,100,000	320,000	4,420,000	1,850,000	150,000	2,000,000
France	1,690,000	130,000	1,820,000	810,000	460,000	1,270,000
The East	1,670,000	9,620,000	11,290,000	2,800,000	8,460,000	11,260,000
Various	6,980,000	570,000	7,550,000	7,840,000	1,190,000	9,030,000
Total . .	14,450,000	10,670,000	25,120,000	14,310,000	10,890,000	25,200,000

HOUSES

The Census of 1891 showed the number of inhabited houses in England and Wales thus :—

Year	Number	Population per 100 Houses
1881	4,832,000	538
1891	5,453,000	532

The above does not include houses unoccupied or in course of construction, which numbered 433,000 in 1881, and 419,000 in 1891.

Census returns show the number of houses inhabited in India as follows :—

	1881	1891	Present Pop. per House
Madras	5,642,000	6,697,000	5.4
Bombay . . .	2,825,000	3,392,000	5.5
Bengal	10,531,000	12,901,000	5.5
N.-W. Provinces .	6,867,000	8,194,000	5.7
Punjaub . . .	2,707,000	3,218,000	6.5
Central Provinces	2,337,000	2,164,000	5.0
Assam	859,000	1,107,000	4.9
Burmah . . .	677,000	1,407,000	5.3
Berar, &c. . . .	564,000	740,000	5.0
British	33,009,000	39,820,000	5.5
Hyderabad . .	1,860,000	2,028,000	5.1
Baroda	480,000	535,000	4.5
Mysore	733,000	887,000	5.5
Rajpoot	2,101,000	2,220,000	5.5
Various	5,422,000	6,538,000	4.9
Feudatory . . .	10,596,000	12,208,000	5.2
Grand total .	43,605,000	52,028,000	5.4

The number of houses at Vienna in 1888 was 13,300, covering 14,000 acres, but if the suburbs or "banlieue" were included the total would be 24,000 houses, on an area of 37,000 acres.

M. Butin's official valuation of house property in France in 1889 showed as follows :—

	1850	1889
Houses, No. . .	7,325,000	8,828,000
Rental, £ . . .	28,400,000	82,300,000
Value, £ . .	785,000,000	1,963,000,000

The selling value in 1889 is estimated at 24 times the yearly rent, which is much too high. (See the figures of the Finance Minister at p. 316.) Butin's tables give the following averages :—

	Per House	
	1850	1889
	£ s. d.	£ s. d.
Rent	3 18 0	9 6 0
Value . . .	107 0 0	223 0 0

From this he would show that house property yielded only 3½ per cent. (3.6) in 1850, and 4 per cent. 1889. In England the average is 5½ per cent.

INCOME

The Société Statistique de Paris (1891) estimated the earnings of the French people thus :—

	Amount	Population	Amount per Inhab.
	£		£ s.
Paris . . .	100,000,000	2,300,000	43 5
Towns . . .	308,000,000	11,000,000	28 0
Rural . . .	536,000,000	23,700,000	22 6
Total .	944,000,000	37,000,000	25 5

It will be seen at p. 320 that I make the income of France 1046 millions sterling.

INDIANS

The number in the United States appears to have declined from 332,000 in 1880 to 249,000 in 1890, the census for the latter year showing thus :—

Cherokees	29,600
Creeks	14,600
Choctaws	14,400
Indians on reservations . .	133,400
Voting as citizens . . .	32,600
Various	24,700
Total . .	249,300

INFIRM

The number of deaf-mutes in the United Kingdom was as follows :—

	1851	1861	1871	1881
England .	10,398	12,323	11,595	13,383
Scotland .	2,155	2,335	2,088	2,142
Ireland . .	4,747	4,930	4,467	3,993
U. Kingdom	17,300	19,588	18,150	19,518

The ratio per million inhabitants showed thus :—

	1851	1861	1871	1881
England . . .	570	610	510	510
Scotland . . .	750	770	625	580
Ireland . . .	730	840	830	770
U. Kingdom . .	625	670	580	555

The numbers given at p. 325 are incorrect.

INSANE

	Number		Per Million Population	
	1859	1889	1859	1889
England. .	36,762	84,345	1,867	2,907
Scotland. .	6,413	11,954	1,980	2,890

The United States Census for 1890 shows that the number of inmates of lunatic asylums was as follows :—

Year	Patients	Per Million Population
1880	56,205	1,124
1890	97,535	1,570

It is not supposed that insanity increased in the same ratio, but that fewer insane are now kept in their families.

INSECTS

In the years 1883–84 the number of locusts destroyed in Cyprus was estimated at 256 milliards (256,000 millions), at a cost of £27,500, or two shillings per million.

IRRIGATION

The importance of irrigation for crops is shown by Messrs. Lawes and Gilbert, who found that an acre of wheat evaporated 60 tons of water monthly.

ISLANDS

Some of the most important are :—

	Square Miles			Square Miles
New Guinea .	. 303,000	Iceland . . .	. 39,800
Borneo . .	. 284,000	Ireland . . .	. 32,600
Madagascar .	. 227,000	Hayti . . .	. 28,800
Sumatra .	. 162,000	Tasmania . .	. 26,200
Great Britain .	. 83,700	Ceylon . . .	. 24,700
Celebes . .	. 68,800	Terra del Fuego .	18,500
Java . .	. 48,400	Formosa . .	. 15,000
Cuba . .	. 45,000	Sicily . . .	. 9,800
Newfoundland	. 40,200	Corsica . . .	. 3,400

LACE

Belgium has 150,000 lace-workers.

LAND

At p. 37, regarding Switzerland, instead of land worth 120 millions sterling, read 220 millions (see p. 340).

LIBRARIES

In 1885 the principal were stated to be :—

	Number of Books	
	1851	1881
British Museum . . .	435,000	1,550,000
National, Paris . . .	824,000	2,370,000
Munich	600,000	1,026,000
St. Petersburg . . .	446,000	1,025,000

The ratio of books in public libraries to population in various countries was as follows :—

Per 100 Population

Great Britain . . 53	Prussia . . . 200
Belgium . . . 95	Bavaria . . . 339
France . . . 129	Denmark . . . 412
Austria . . . 167	Saxony . . . 417

LOCAL TAXATION

According to Sir John Lubbock, the local taxation and debt in various cities in 1890 was as follows per inhabitant :—

	Taxes			Debt		
	£	s.	d.	£	s.	d.
London . . .	2	7	6	9	3	8
Birmingham . .	2	16	3	10	1	8
Paris . . .	5	4	7	23	5	3
Vienna . . .	3	2	10	...		
New York . .	6	3	4	16	3	3
Boston . . .	6	2	3	24	10	7

MAIZE

The average yield per acre in six of the highest and six of the lowest of the United States was :—

	Highest			Lowest	
	1870–79	1879–88		1870–79	1879–88
	Bushels	Bushels		Bushels	Bushels
Vermont . .	37	34	Mississippi	15	14
Maine. . .	32	34	N. Carolina	15	13
N. Hampshire	38	34	Alabama .	14	13
Massachusetts	35	32	Georgia .	11	10
New York .	33	31	Florida .	10	9
New Jersey .	36	31	S. Carolina	9	9

The general average for the Union was :—

1870–79	27.1
1879–88	24.2

It appears that 9 acres in the first decade produced as much as 10 in the second.

MANUFACTURES

Birmingham turns out weekly 14,000,000 pens, 10 tons of pins, 6,000 bedsteads, 7,000 guns, 4,000 miles of wire, 500 tons of screw bolts, 300 million nails, 5 million coins, and 1 million buttons.

METEOROLOGY

At Asunçion, Paraguay, the average rainfall during nine years, ending 1886, was as follows in inches :—

Jan. . . 7.0	April. . 6.8	July . . 6.7	Oct. . . 5.4
Feb. . 6.9	May . . 8.4	Aug.. . 4.8	Nov.. . 6.7
March . 6.9	June . . 3.8	Sept.. . 5.6	Dec.. . 6.0
Quarter 20.8	Quarter 19.0	Quarter 17.1	Quarter 18.1

Total for the year, 75 inches.

MONEY

The Washington Mint report for 1890 gives the following summary, in millions of dollars :—

		Hard Money			Paper Money	Total
		Gold	Silver	Total		
United Kingdom	.	550	100	650	195	845
France	. . .	900	700	1,600	504	2,104
Germany	. . .	500	145	645	255	900
Russia	. . .	140	60	200	520	720
Austria	. . .	40	90	130	330	460
Italy .	. . .	190	60	250	260	510
Spain .	. . .	100	125	225	165	390
Portugal	. . .	40	10	50	7	57
Scandinavia	. .	32	10	42	40	82
Holland	. . .	25	65	90	87	177
Belgium	. . .	65	55	120	75	195
Switzerland .	. .	15	15	30	25	55
Turkey, &c.	. .	52	49	101	38	139
Europe	. . .	2,649	1,484	4,133	2,501	6,634
United States	. .	702	482	1,184	958	2,142
Canada	. . .	16	5	21	50	71
Australia	. . .	100	7	107	25	132
India .	. . .	...	900	900	60	960
China .	. . .	...	700	700	...	700
Japan .	. . .	90	50	140	123	263
Egypt .	. . .	100	15	115	...	115
Various	. . .	70	177	247	520	767
Total	.	3,727	3,820	7,547	4,237	11,784

The first issue of assignats was in 1790, for a sum of £16,000,000 sterling. In 1796 the amount in circulation was 45,578 millions, nominally representing £1,823,000,000 sterling ; but as one silver franc was worth 300 paper assignats, the total market value of the currency was only £6,080,000. The figures given at p. 410 are incorrect.

MONUMENTS

The Eiffel Tower, Paris, 990 ft. high, has 7000 tons of iron, and cost £200,000 sterling.

NAVY

Chambers's Encyclopædia gives the following summary of navies in 1890 :—

	Battle	Cruisers	Gun-boats, &c.	Total	Guns	Men	Tor-pedo-Boats
U. Kingdom	64	132	259	455	3,631	94,600	204
France . .	53	64	163	280	1,735	70,600	177
Germany .	34	30	28	92	608	16,500	125
Russia . .	36	40	145	221	710	31,000	137
Austria . .	15	19	38	72	309	9,000	96
Italy . . .	22	27	87	136	611	23,000	131
Spain . . .	7	27	86	120	305	16,700	16
Portugal . .	1	8	31	40	98	3,500	24
Sweden . .	20	9	64	93	154	7,900	69
Denmark .	9	3	28	40	202	1,400	36
Holland . .	24	10	74	108	256	10,000	32
Greece . .	5	4	22	31	82	1,100	44
Turkey . .	18	7	76	101	382	23,000	23
Europe . .	308	380	1,101	1,789	9,083	308,300	1,114
U. States .	21	37	31	89	284	...	6
Brazil . .	10	8	24	42	134	...	24
Argentina .	4	2	23	29	35	...	20
Chili . . .	4	8	13	25	95	...	13
Japan . .	6	20	27	53	212	...	29
China . .	6	16	36	58	133	...	31
Total .	359	471	1,255	2,085	9,976	...	1,237

The above, however, includes some vessels that are building. The number of guns includes heavy and light. Guns weighing twelve tons or upwards were :—

Navy	No.	Navy	No.	Navy	No.
British .	. 430	Spanish .	. 48	United States	26
French	. 252	Danish. .	. 22	Brazilian . .	28
German	. 135	Swedish .	. 39	Argentine . .	12
Russian	. 124	Dutch . .	. 39	Chilian . .	18
Austrian	. 49	Greek . .	. 8	Japanese . .	17
Italian .	. 78	Turkish .	. 54	Chinese . .	25

Making a total of 1404 heavy guns.

OIL

The shipments of Baku refined mineral oil from Batoum in the years 1889 and 1890 were :—

To	Gallons	
	1889	1890
England . . .	33,300,000	36,000,000
India . . .	23,700,000	33,100,000
Turkey . . .	20,800,000	22,600,000
Russia . . .	16,400,000	18,200,000
Italy . . .	11,400,000	11,900,000
Various . . .	60,100,000	64,300,000
Total .	165,700,000	186,100,000

The above is exclusive of unrefined oil, of which 37,000,000 gallons were shipped in 1889.

ORDERS

Chambers's Encyclopædia says that 124,000 Franciscan friars perished in attending the sick during the great plague of 1346. Helyot stated that in 1710 there were 7000 Franciscan convents with 120,000 friars, and 900 Franciscan nunneries with 30,000 nuns.

The Legion of Honour counted 48,000 members under Bonaparte, 69,200 under Thiers, and the present number is 53,800.

PAPER

Chambers's Encyclopædia gives the following statistics of paper-making in 1890 :—

		Mills	Tons Paper
United Kingdom	. .	300	400,000
France	. . .	491	240,000
Germany	. . .	1,083	180,000
Russia	. . .	46	34,000
Austria	. . .	741	72,000
Italy .	. . .	230	48,000
Spain	. . .	95	13,000
Portugal	. . .	16	6,000
Scandinavia	. .	144	18,000
Holland	. . .	65	7,000
Belgium	. . .	37	22,000
Switzerland	. .	34	10,000
Europe	. . .	3,282	1,050,000
United States	. .	1,005	1,200,000
Spanish America	.	85	...
Total	.	4,372	2,250,000

The mills in the United Kingdom were as follows :—

	1851	1877
England	349	300
Scotland . . .	48	65
Ireland	40	20
Total . .	437	385
Product, tons . . .	62,000	360,000

The production of paper in the United States was stated to be :—

Year	Tons	Lbs. per Inhabitant
1860	60,000	4.2
1872	200,000	11.0
1890	1,200,000	42.0

The total value of the paper manufactured in the world is about 67 millions sterling, the average price having fallen from £62 per ton in 1874 to £30 in 1890.

Alfa or Esparto grass is used largely in making paper, the exports showing from various countries thus :—

Exported from	Tons	
	1870	1889
Spain	90,000	45,000
Algeria . . .	33,000	80,000
Tunis	33,000	100,000
Tripoli . . .	80,000	75,000
Total . .	236,000	300,000

The consumption in Great Britain averages 200,000 tons yearly.

PARLIAMENT

In 1890 the Austrian Reichsrath consisted of 172 senators and 353 deputies.

PASSENGERS

The traffic in London was as follows :—

	1864	1890
Omnibus	42,000,000 }	238,000,000
Railways, &c. . .	40,000,000 }	
Tramways . . .	...	169,000,000
Total . .	82,000,000	407,000,000

POPULATION

The Census of the United Kingdom on 5th April 1891 showed thus :—

	1891	1881
England and Wales . .	29,001,000	25,968,000
Scotland	4,033,000	3,734,000
Ireland	4,706,000	5,160,000
United Kingdom .	37,740,000	34,862,000

The principal cities of Scotland in 1891 showed :—

Glasgow	.	. 793,000	Dundee. . .	. 156,000
Edinburgh	.	. 261,000	Aberdeen . .	. 122,000

The Census of 1891 showed the principal towns of Ireland as follows :—

	1881	1891	Increase
Dublin	249,600	254,700	2.0
Belfast	208,100	255,900	23.0
Cork	80,100	75,100	...
Limerick . . .	38,600	37,100	...

All the minor towns except Londonderry showed a decrease.

The Census of 5th April 1891 showed for England and Wales as follows :—

	1881	1891
Males	12,625,000	14,050,000
Females	13,343,000	14,951,000
Total . .	25,968,000	29,001,000

This was an increase for the decade of 3,033,000, or 11.7 per cent., the lowest rate of increase since 1800. The ratio of sexes stood thus :—

	1881	1891
Males	486	484
Females	514	516
Total . .	1,000	1,000

The increasing ratio of females was due to emigration, the natural increase (surplus of births over deaths) having been as follows :—

	Number	Ratio
Males	1,821,000	14.5
Females	1,809,000	13.6

The surplus female population keeps rising every decade.

The German Census of 1890 compares with that of 1885 as follows :—

	1885	1890	Increase Ratio
Prussia . . .	28,319,000	29,957,000	5.9
Bavaria . . .	5,420,000	5,589,000	3.2
Saxony . . .	3,182,000	3,501,000	10.0
Wurtemberg . .	1,995,000	2,035,000	1.8
Baden . . .	1,601,000	1,657,000	3.5
Small States . .	6,339,000	6,682,000	5.4
Total . .	46,856,000	49,421,000	5.5

The Census of 1891 showed for English cities as follows :—

	1881	1891	Rate of Increase	Area Acres	Pop. per Acre
London . . .	3,815,500	4,211,100	10.4	74,700	56
Manchester .	638,500	703,500	10.1	17,960	39
Liverpool . .	552,500	518,000	...	5,210	99
Birmingham .	400,800	429,200	7.1	8,400	51
Leeds . . .	309,100	367,500	18.9	21,570	17
Sheffield . .	284,500	324,200	14.0	19,650	17
Bristol . . .	206,900	221,700	7.1	3,600	62
Bradford . .	194,500	216,400	11.2	10,780	20
Nottingham .	186,600	212,000	13.6	9,960	21
Hull	165,700	200,000	20.7	7,920	25
Newcastle . .	145,400	186,300	28.2	5,370	35
Portsmouth .	128,000	159,300	24.4	4,320	37
Leicester . .	122,400	142,100	16.1	3,200	44
Oldham . . .	111,300	131,500	18.1	4,730	28
Sunderland .	116,500	130,900	12.3	3,030	43
Cardiff . . .	82,800	128,800	55.7	7,370	18
Blackburn . .	104,000	120,100	15.4	6,970	17
Brighton . .	107,500	115,400	7.3	2,510	46
Various . . .	764,700	861,700	13.2	41,650	21
28 cities . .	8,437,200	9,379,700	11.2	258,900	36

Manchester includes Salford. If Birkenhead were added to Liverpool, the latter would reach 617,000

souls: the combined population was 637,000 in 1881, declining 3 per cent. in the decade ending 1891.

The Census of India in 1891, as regards sexes, shows thus :—

	1881	1891	Increase Ratio
Males . . .	129,996,000	145,315,000	11.8
Females . .	123,992,000	139,231,000	12.2
Total . .	253,988,000	284,546,000	12.0

Burmah was increased in the decade by the annexation of Upper Burmah, with an area of 69,000 square miles, and an actual population of 2,984,000 souls. The area of Kashmere seems also to have undergone change.

The Census of India in 1891 was as follows :—

Some of the principal Indian cities showed as follows :—

	1881	1891	Rate of Increase
Calcutta . . .	742,000	840,000	13.2
Bombay . . .	773,000	804,000	4.0
Madras . . .	406,000	450,000	10.9
Lucknow . . .	261,000	273,000	4.6
Benares . . .	200,000	222,000	11.0
Delhi . . .	173,000	194,000	12.3
Cawnpore . .	151,000	182,000	20.6
Rangoon . .	134,000	181,000	35.0
8 cities . .	2,840,000	3,146,000	10.5

With reference to the population of cities of antiquity, we read that Carthage had 700,000 inhabitants in 150 B.C.

Province	1881	1891	Rate of Increase	Square Miles	Population per Sq. Mile
Madras	30,813,000	35,589,000	15.5	143,345	248
Bombay	16,469,000	18,827,000	14.3	125,390	150
Bengal	66,590,000	70,909,000	6.5	149,725	473
North-West Provinces . . .	44,108,000	45,923,000	6.4	106,110	442
Punjaub	18,843,000	20,803,000	10.4	111,020	187
Central Provinces . . .	9,839,000	10,775,000	9.5	84,445	128
Berar, &c.	3,311,000	3,610,000	9.1	22,004	164
Assam	4,881,000	5,423,000	11.1	46,310	118
Burmah	3,737,000	7,554,000	102.0	156,140	48
Islands, &c. . . .	64,000	99,000	58.0	115	860
British	198,655,000	220,512,000	11.0	944,604	233
Hyderabad . . .	9,846,000	10,459,000	6.1	81,810	127
Baroda	2,185,000	2,414,000	10.5	8,570	280
Mysore	4,186,000	4,860,000	16.5	24,725	197
Kashmere . . .	1,535,000	2,507,000	64.0	80,900	31
Rajpoot	10,268,000	12,301,000	19.8	129,750	94
Various	29,014,000	31,784,000	9.5	312,917	102
Feudatory . . .	57,034,000	64,325,000	14.4	638,672	101
Grand Total . .	255,689,000	284,837,000	11.5	1,583,276	180

PRESS

Chambers's Encyclopædia gives the circulation of certain papers as follows (1890) :—

Name	Place	Published	Issue
Standard . . .	London .	Daily	250,000
Telegraph . . .	,, . .	,,	250,000
Star . . .	,, . .	,,	200,000
Echo . . .	,, . .	,,	200,000
Evening News . .	,, . .	,,	200,000
Lloyd's . . .	,, . .	Weekly	500,000
Dispatch . . .	,, . .	,,	250,000
Reynolds' . . .	,, . .	,,	250,000
Police News . .	,, . .	,,	300,000
Referee . . .	,, . .	,,	150,000
Illustrated London News	,, . .	,,	120,000
Graphic . . .	,, . .	,,	120,000
Tit-Bits . . .	,, . .	,,	500,000
Telegraph . . .	Sheffield .	,,	215,000
Mail . . .	Glasgow .	,,	200,000
Chronicle . . .	Manchester	,,	200,000
News . . .	Dundee .	,,	200,000
Chronicle . . .	Newcastle .	,,	100,000
Petit Journal . .	Paris . .	Daily	950,000
Figaro . . .	,, . .	,,	100,000
Secolo . . .	Milan . .	,,	120,000
Imparcial . . .	Madrid . .	,,	70,000

The press of the United Kingdom in 1890 was as follows :—

London	646
Provinces	1,429
Scotland	241
Ireland	192
Total . .	2,508

The above item for the provinces includes 90 for Wales, 14 the Channel Islands, and 7 the Isle of Man. There are in the United Kingdom 211 daily papers, of which 28 are published in London.

In 1890 the press of the United States and Canada counted :—

Daily papers	1,626
Weekly papers	13,381
Magazines, &c.	2,753
Total .	17,760

New York . .	1,778	Over 150,000 copies	27
Illinois . .	1,309	100,000-150,000 ,,	28
Pennsylvania . .	1,281	75,000-100,000 ,,	35
Other States .	12,580	50,000-75,000 ,,	42
Canada . .	812	Under 50,000 ,,	17,628
Total .	17,760	Total .	17,760

The issue in the aggregate was 41,524,000 copies.

Supposing the same ratio as in 1880, it would be made up thus :—

Dailies .	.	.	.	.	4,800,000
Weeklies	.	.	.	.	26,000,000
Reviews, &c.	.	.	.	.	10,724,000
	Total	.	.		41,524,000

This would give a total monthly issue of 240 millions, including 10 millions for Canada: see p. 467. The number of papers printed monthly in New York, according to Burnley, is about 57 millions.

Regarding the book press in England, it is stated that from 1842 to 1888 Mudie bought 6 million books for his lending library, sometimes taking 3000 copies of a new work. Chapman & Hall have sold 900,000 copies of *Pickwick Papers*. The sale of *Webster's Spelling-Book* has already passed 50 millions. Cassell says that Messrs. Routledge print 6 million books yearly. More than 1,500,000 copies of *Uncle Tom's Cabin* were sold down to 1887, and 520,000 of *Longfellow's Poems*. The annual sale of *Moore's Almanac* from 1800 to 1820 averaged 500,000 copies. Down to 1887 the British Bible Society had printed 112 million, the American 40 million Bibles: the former issues 4 million, the latter 1,500,000 copies yearly. One of the smallest books ever published is Hoepli's *Dante*, 2½ by 1½ inches. The Thumb Bible is even smaller, being the size of a postage-stamp. *Chambers* says that at least 10,000 distinct works were printed between the years 1476 and 1600, including 326 editions of the Bible, still extant.

PRICES

Sauerbeck's index-numbers for the last ten years were as follows :—

Year	Food	Minerals	Textiles	Sundries	Total
1867–77 . .	100	100	100	100	100
1881 . . .	91	77	77	86	85
1882 . . .	89	79	73	85	84
1883 . . .	89	76	70	84	82
1884 . . .	79	68	68	81	76
1885 . . .	74	66	65	76	72
1886 . . .	72	67	63	69	69
1887 . . .	70	69	65	67	68
1888 . . .	72	78	64	67	70
1889 . . .	75	75	70	68	72
1890 . . .	73	80	66	69	72

The *Economist* gives the following prices for 1889 and 1890, as compared with the average for ten years :—

	1881–90	1889	1890
	Shillings	Shillings	Shillings
Wheat, quarter . . .	35.5	29.7	32.0
Flour, sack	32.0	29.0	29.0
Maize, quarter . . .	24.0	20.0	20.0
Potatoes, ton . . .	83.0	80.0	70.0
Rice, ,, . . .	145.0	145.0	145.0
Beef, per cwt. . .	60.7	55.0	55.0
Mutton ,, . .	73.5	73.5	69.0
Pork ,, . .	54.0	50.0	49.0
Bacon ,, . .	79.0	77.0	72.0
Butter ,, . .	111.0	102.0	100.0
Sugar ,, . .	15.0	16.0	13.0
Coffee ,, . .	56.0	76.0	83.0
Tea ,, . .	110.0	100.0	101.0
Iron, ton . . .	45.0	48.0	50.0
Copper, cwt. . .	59.0	54.0	59.0

	1881–90	1889	1890
	Shillings	Shillings	Shillings
Lead, cwt. . . .	13.0	13.0	13.2
Coal, ton . . .	9.5	10.2	12.6
Cotton, cwt. . .	55.0	55.5	56.0
Flax, ,, . .	30.5	28.0	27.0
Jute, ,, . .	14.0	15.0	13.2
Wool (Australian), cwt.	72.0	77.0	70.0
Hides, dry, ,, .	74.0	58.0	54.0
Tallow, ,, .	40.0	38.0	38.0
Palm oil, ,, .	29.5	25.0	27.0
Linseed do., ,, .	21.5	20.0	23.0
Nitrate, ,, .	10.7	9.5	8.5
Timber, load. . .	46.0	47.0	44.0

Sauerbeck sums up the annual value of forty-five principal articles of British trade, imports and exports, from 1848, and shows also what the values would have been at the prices prevailing in the eleven years 1867–77, as follows :—

Period	Actual Value Millions, £	At Prices of 1867–77	Ratio of Former to Latter
1848–50 . .	220	295	74.6
1859–61 . .	350	383	91.5
1869–71 . .	457	485	94.2
1874–76 . .	538	538	100.0
1879–81 . .	490	578	84.6
1884–86 . .	446	610	73.0
1887 . . .	423	628	67.4
1888 . . .	443	641	69.2
1889 . . .	492	681	72.3
1890 . . .	497	672	73.9

The last column indicates the price-level, from which it appears that prices in 1890 were almost on a level with those of 1848–50, and 26 per cent. lower than in 1874–76, that is to say, 15 shillings buys as much now as 20 shillings in 1874–76.

RAILWAYS

Official returns for the railways of Canada in 1890 show thus :—

Miles open .	.	.	.	13,325
Capital cost, £	.	.	.	158,000,000
Gross receipts, £	.	.	.	8,700,000
Expenses, £	.	.	.	6,500,000
Net product, £ .	.	.	.	2,200,000

This is a net return of 1½ per cent. on capital. The traffic showed 12 million passengers and 18 million tons of merchandise.

RELIGION

The Census of 1885 in Germany showed thus :—

	Protestants	Catholics	Jews	Various
Prussia . .	18,240,000	9,620,000	367,000	86,000
Bavaria . .	1,520,000	3,840,000	54,000	6,000
Saxony . .	3,080,000	90,000	8,000	11,000
Wurtemburg .	1,380,000	600,000	13,000	5,000
Baden . .	570,000	1,005,000	27,000	3,000
Hesse . .	640,000	280,000	26,000	8,000
Other States	3,940,000	1,355,000	68,000	18,000
Total .	29,370,000	16,790,000	563,000	137,000

RIVERS

Latest estimates give the following particulars :—

The Amazon drains a basin of 2,500,000 square miles, and has, with its affluents, 50,000 miles of navigable stream, of which 25,000 miles are by steamer. The basins drained by the three great African rivers are, in square miles; Nile, 1,500,000; Congo, 1,350,000; Niger, 850,000.

Austria proper has 4600 miles of navigable canals and rivers. The Danube has 400 tributaries, of which 100 are navigable.

SANITATION

Sewage matter is often turned to much profit for irrigation. There is a sewage farm near Edinburgh which gives five crops of grass yearly, sometimes 10 tons per acre at a cutting. As much as £35 an acre yearly rent is paid for part of the meadows.

SHIPPING

The returns of the Bureau Veritas for steam-vessels in 1891 were as follows :—

Nationality	Number of Ships	Gross Tonnage	Net Tonnage
English. . . .	5,312	8,043,000	5,106,000
German . . .	689	930,000	656,000
French	471	805,000	484,000
American . . .	419	583,000	375,000
Spanish . . .	350	423,000	273,000
Italian	200	294,000	185,000
Norwegian . .	371	245,000	176,000
Dutch	164	220,000	149,000
Russian . . .	230	177,000	115,000
Swedish . . .	406	172,000	126,000
Danish . . .	197	154,000	103,000
Austrian . . .	111	149,000	96,000
Japanese . . .	147	123,000	76,000
Belgian . . .	55	98,000	71,000
Brazilian . . .	129	75,000	48,000
Greek . . .	68	70,000	44,000
Portuguese . .	41	49,000	29,000

The same authority gives the tonnage at various dates as follows :—

Year	Steamers	Gross Tons	Net Tons
1881 . . .	6,357	7,475,000	4,880,000
1885 . . .	8,394	10,268,000	6,719,000
1889 . . .	8,335	11,046,000	7,252,000
1891 . . .	9,688	12,826,000	8,289,000

The tonnage of vessels entered and cleared with cargo into and from ports of the United Kingdom in 1890 showed :—

	Entered From	Cleared to	Total Trade
United States .	5,545,000	3,350,000	8,895,000
Spain	2,890,000	1,390,000	4,280,000
France	2,130,000	3,960,000	6,090,000
Russia	2,350,000	1,365,000	3,715,000
Scandinavia . .	3,070,000	3,065,000	6,135,000
Germany . . .	1,945,000	3,485,000	5,430,000
Colonies . . .	4,265,000	5,690,000	9,955,000
Various	6,785,000	11,555,000	18,340,000
Total .	28,980,000	33,860,000	62,840,000

SOCIETIES

Mr. Wilkinson in 1890 stated the friendly societies of the United Kingdom thus :—

	Members	Funds, £
Affiliated societies . .	2,024,000	13,100,000
Collecting ,, . .	3,590,000	2,300,000
Local, &c. ,, .	1,797,000	4,100,000
Total . .	7,411,000	19,500,000

The Oddfellows and the Foresters between them make up 1,314,000 members, with funds amounting to £10,500,000.

THEATRES

London has 25, with seats for 28,600 persons, representing a nightly receipt of £6000. Drury Lane seats 3500, representing £450.

TRAMWAYS

In 1890 Boston had 60 miles of electric tramways with 300 cars, carrying 100,000 passengers daily. Receipts daily, $27 per car, expenses, $7.

The tramways of Buenos Ayres carried 48,000,000 passengers in 1890, against 3,600,000 in 1880.

WATER

The specific gravity of that of the Black Sea is 1014, of the Mediteranean 1028.

WINE

The ordinary yield of 10,000 vines, in wine yearly, is said to be :—

	Gallons		Gallons
France . . .	400	United States . .	320
Germany . .	530	Australia . .	320
Switzerland . .	930	Cape Colony .	2,800

Cape Colony has 60 million vines, covering 20,000 acres.

WOOL

The Journal of Arts (1890) has the following :—

The Russian wool clip averages 360,000,000 lbs., say 5½ lbs. per sheep. The flocks count thus :—

	Merino	Ordinary	Total
European Russia . . .	13,000,000	40,000,000	53,000,000
Caucasus	2,000,000	10,000,000	12,000,000
Total . .	15,000,000	50,000,000	65,000,000

WEALTH

The Census Report of 1890 for the United States compares with that of 1880 thus :—

	Assessed Values, $		£ Sterling
1880 .	16,903,000,000	=	3,515,000,000
1890 .	24,250,000,000	=	5,044,000,000

Bradstreet says —"If the true value of property has increased in the same ratio, the wealth of the United States will be found to reach in 1890 the sum of $62,610,000,000, equal to 13,020 million pounds sterling." This is nearly the same amount as my estimate under the head of Wealth, at p. 594.

There was a great increase of wealth in the Argentine Republic from 1857 to 1884. Latzina's official valuation in 1887 was the same amount as my estimate in 1884, in the following table :—

	1857			1884		
	Buenos Ayres	Other Provinces	Total	Buenos Ayres	Other Provinces	Total
	£	£	£	£	£	£
Houses	10,800,000	8,200,000	19,000,000	60,600,000	33,800,000	94,400,000
Lands	8,800,000	12,600,000	21,400,000	60,200,000	45,200,000	105,400,000
Cattle	11,000,000	7,200,000	18,200,000	40,400,000	25,800,000	66,200,000
Public Works . . .	1,200,000	1,000,000	2,200,000	19,600,000	13,200,000	32,800,000
Sundries	5,200,000	7,600,000	12,800,000	46,200,000	30,200,000	76,400,000
Total .	37,000,000	36,600,000	73,600,000	227,000,000	148,200,000	375,200,000

The table for 1884 of the several provinces showed thus :—

	Land	Cattle	Houses	Public Works	Sundries	Total	Per Inhab.
	£	£	£	£	£	£	£
Buenos Ayres .	60,200,000	40,400,000	60,600,000	19,600,000	46,200,000	227,000,000	249
Santa Fé .	9,000,000	3,600,000	4,800,000	1,600,000	4,800,000	23,800,000	126
Cordoba . .	5,200,000	4,200,000	5,000,000	3,600,000	4,400,000	22,400,000	67
Tucuman .	2,800,000	1,200,000	2,600,000	1,200,000	2,000,000	9,800,000	54
Santiago .	1,200,000	2,200,000	2,200,000	800,000	1,600,000	8,000,000	50
Catamarca . .	2,000,000	1,000,000	1,600,000	800,000	1,400,000	6,800,000	67
Salta . . .	2,200,000	1,000,000	2,200,000	800,000	1,600,000	7,800,000	47
Jujuy . . .	600,000	400,000	800,000	200,000	600,000	2,600,000	40
Rioja . . .	1,000,000	600,000	1,200,000	200,000	800,000	3,800,000	44
San Juan . .	2,600,000	600,000	1,600,000	600,000	1,400,000	6,800,000	75
Mendoza . .	3,800,000	800,000	2,000,000	1,000,000	2,000,000	9,600,000	97
San Luis .	1,800,000	600,000	1,200,000	800,000	1,200,000	5,600,000	75
Entre Rios .	7,800,000	6,200,000	4,800,000	800,000	5,000,000	24,600,000	130
Corrientes . .	5,200,000	3,400,000	3,800,000	800,000	3,400,000	16,600,000	81
Total .	105,400,000	66,200,000	94,400,000	32,800,000	76,400,000	375,200,000	131

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I

Scottish Provident

Institution.

EDINBURGH: 6, ST. ANDREW SQUARE.   LONDON: 17, KING WILLIAM STREET, E.C.

IN this SOCIETY are combined the advantages of

Mutual Assurance with Moderate Premiums.

THE PREMIUMS are so moderate that an Assurance of £1,200 or £1,250 may generally be secured from the first for the yearly payment which usually would be charged (with profits) for £1,000 only—equivalent to an immediate Bonus of 20 to 25 per cent.

The WHOLE PROFITS go to the Policyholders, on a system at once safe and equitable—no share being given to those by whose early death there is a *loss*.   Large additions have thus been, and will be made to the policies of those who participate, notwithstanding the lowness of the premiums.

The SURPLUS at last Investigation was **£1,051,035**, which, after reserving one-third, was divided among 9,384 Policies entitled to participate.   First additions (with few exceptions) ranged from 18 to 34 per cent. according to age and class.   Other Policies were increased in all 50 to 80 per cent.

Examples of Premium for £100 at Death—with Profits.

AGE.	25	30	35	40	45	50	55
During Life	£1 18 0	£2 1 6*	£2 6 10	£2 14 9	£3 5 9	£4 1 7	£5 1 11
21 Payments	2 12 6	2 15 4	3 0 2	3 7 5†	3 17 6	4 12 1	5 10 2

[The usual *non-participating* Rates differ little from these Premiums.]

* A person of 30 may secure £1000 at death, by a yearly payment, *during life*, of £20 15s. This premium would generally elsewhere secure £800 only, instead of £1000. OR, he may secure £1000 by 21 yearly payments of £27 13s. 4d.— *being thus free of payment after age 50.*

† At age 40, the Premium *ceasing at age 60*, is, for £1000, £33 14s. 2d.—about the same as most Offices require during the whole term of life.   Before the Premiums have ceased the Policy will have shared in at least one division of profits.

To **Professional Men** and others, whose income is dependent on continuance of health, this limited payment system is specially recommended.

Endowment Assurances.—Tables of the Premiums to secure the benefits of such Assurance at Death, with *guaranteed* increased amounts in case of surviving the specified periods, may be had on application.

New Assurances completed in 1890 were £1,032,008.

Being for the 17th year in succession above a Million.

Premiums in year £600,820.   Total Income £907,648.

The Expenses were under 10 per cent. of premium income.

The Claims (including Bonus Additions*) were £431,466.

* These averaged about 49 per cent. on Assurances which participated.

THE FUNDS (increased by £363,150) amounted to £7,356,619.

Arrangements as to SURRENDERS, NON-FORFEITURE, LOANS ON POLICIES, EARLY PAYMENT OF CLAIMS, FREE RESIDENCE, etc., are specially liberal.

REPORTS, *with full information, may be had on application.*

J. MUIR LEITCH, *London Secretary.*   JAMES GRAHAM WATSON, *Manager.*

3

4

THE BANK OF AUSTRALASIA

(Incorporated under Royal Charter, 1835),

4, THREADNEEDLE STREET, LONDON.

Paid-up Capital	*£1,600,000*
Reserve Fund	*800,000*
Reserve Liability of Proprietors under the Charter	*1,600,000*
	£4,000,000

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Current Accounts are opened and kept on same terms as by London Bankers. Interest is allowed on the current accounts at the rate of Two per cent. when the minimum balance does not fall below £200 at any time during the half-year, and at One per cent. when it does not fall below £100.

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Purchases and Sales effected in all British and Foreign Stocks. Pay, Pensions, Annuities, &c., realized free of any charge to constituents.

Letters of Credit and Circular Notes issued payable on the Continent of Europe, Egypt, China, Australia, New Zealand, Canada, America, &c. The Bank draws on, and approved Bills are purchased or sent for collection drawn upon, the following places in

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AGRA.	CALCUTTA.	LUCKNOW.	NYNETAL.
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Every description of Banking business and Money Agency transacted.

6

ROYAL EXCHANGE ASSURANCE

CORPORATION

(Established by Royal Charter, A.D. 1720).

FOR SEA, FIRE, LIFE, AND ANNUITIES.

CHIEF OFFICE, ROYAL EXCHANGE, LONDON; BRANCH, 29, PALL MALL.

Accumulated Funds exceed £4,000,000.

The Total Claims paid by this Corporation have exceeded THIRTY-FIVE MILLIONS Sterling.

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Policies issued free of expense.

LOSSES OCCASIONED BY LIGHTNING will be paid, whether the property be set on fire or not.

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MODERN AND IMPROVED SYSTEM OF ASSURANCE.

Unimpeachable Security.   Large Bonuses.   Liberal Conditions of Assurance.
Guaranteed minimum Surrender Values.
Policies protected against accidental forfeiture.
Immediate settlement of Claims.
No fines or fees charged.

SPECIMENS OF BONUSES DECLARED UP TO 31st DECEMBER, 1890.

1.—*Reversionary Bonuses.*   2.—*Reduction of Premium.*

Year of Entry.	Age at Entry.	Sum Assured.	Total Bonus previous to 1890.	Bonus in 1890.	Total Bonus.	Year of Entry.	Age at Entry.	Sum Assured.	Total Permanent Reduction.	Reversionary Bonus subsequently added.
		£	£	£	£			£		£
1842	28	1,000	694	141	835	1842	43	1,000	Extinguished.	529
1850	46	3,000	2,067	378	2,445	1850	35	750	Do.	128
1860	38	1,000	367	109	476	1860	40	1,000	Do.	14
1870	35	2,000	479	188	667	1870	37	4,000	48 per cent.	...
1880	26	1,000	74	81	155	1880	41	8,000	20 ,,	...

At the last division of surplus (in 1891) the Reversionary Bonuses varied from £75 to £141 per £1,000 assured, for the full quinquennium, the actual rate in individual cases being dependent upon the duration of the Policy.

LOANS are granted on security of Reversionary and Immediate LIFE INTERESTS in connection with Policies of Assurance.

All real improvements in modern practice, with the security of an Office whose resources have been tested by the experience of **MORE THAN A CENTURY AND A-HALF.**

The Corporation are open to consider applications for Agencies.

A full Prospectus, giving specimens of the Large Bonuses distributed, and a copy of the last Annual Accounts, will be forwarded on application.

E. R. HANDCOCK, *Secretary.*

NORTH BRITISH & MERCANTILE INSURANCE CO.
FIRE, LIFE, AND ANNUITIES.

Incorporated by Royal Charter and Special Acts of Parliament.

President—HIS GRACE THE DUKE OF ROXBURGHE. *Vice-President*—HIS GRACE THE DUKE OF SUTHERLAND, K.G.

LONDON DIRECTORS.

Chairman—Baron Schröder.   *Deputy Chairman*—Pascoe Du Pré Grenfell, Esq.

Charles Morrison, Esq.   John Sanderson, Esq.   Charles A. Cater, Esq.
George Garden Nicol, Esq.   Quintin Hogg, Esq.   Alex. D. Kleinwort, Esq.
Alexander H. Campbell, Esq.   Hon. Charles W. Mills, M.P.   Geo. E. Scaramanga, Esq.
                                Hon. Charles N. Lawrence.

Manager of Fire Department—George Henry Burnett. *Manager of Life Department and Actuary*—Henry Cockburn.
Foreign Sub-Managers—Philip Winsor and E. A. De Paiva. *Secretary*—F. W. Lance. *Medical Officers*—Hermann Weber, M.D., and H. Port, M.D. *Solicitors*—Bircham & Co. *Bankers*—Glyn, Mills, Currie & Co., Lombard Street, E C.
Auditor—James Haldane, Chartered Accountant.

EDINBURGH DIRECTORS.

J. F. Walker-Drummond Esq.   Frederick Pitman, Esq.   John Wharton Tod, Esq.   Sir Thomas Clark, Bart.
David B. Wauchope, Esq.   Charles Gairdner, Esq.   Sir Jas. H. Gibson-Craig, Bart. Charles B. Logan, Esq.
Sir James Gardiner Baird, Bart. Ralph Dundas, Esq.   Right Hon. the Earl of Elgin. Charles C. Maconochie, Esq.
George Auldjo Jamieson, Esq.

Manager—A. Gillies Smith, F.R.S.E.   *Secretary*—Philip R. D. Maclagan.   *Actuary*—Thomas Wallace.
Medical Officer—J. Playfair, M.B., F.R.C.P.E.   *Solicitors*—J. & F. Anderson, W.S.   *Auditor*—James Haldane, Chartered Accountant.

LIFE DEPARTMENT.

THE PRINCIPLES on which this Company was founded, and on which it continues to act, combine the system of Mutual Assurance with the safety of a large Protecting Capital and Accumulated Funds, and thus afford all the facilities and advantages which can prudently be offered by any Life Assurance Office.   Under these principles the business of the Company continues rapidly to increase.

NINETY PER CENT. of the WHOLE PROFITS is divided among the Assurers on the Participating Scale.
THE PROFITS are divided every Five Years.   The next division, 31st December, 1895.
CLAIMS paid on proof of Death and Title.
ANNUITIES of all kinds are granted, and the rates fixed on the most favourable terms.

FIRE DEPARTMENT.

PROPERTY OF NEARLY EVERY DESCRIPTION, at Home and Abroad, Insured at most favourable Rates.
Net Premiums for 1890 amounted to **£1,389,157 11s. 11d.**

Losses from Fire occasioned by Lightning are made good by this Company.   *Losses or Damage caused by explosion of Gas* in Buildings not forming part of any Gas Works are made good by the Company.   *Insurances* effected for seven years will be charged six years' Premiums only.   *No charge for Alterations by Endorsements.   Rents of Buildings Insured.*

TOTAL ASSETS AT 31st DECEMBER, 1890, £10,439,943 18s. 5d.

I.—Authorised Capital	£3,000,000 0 0		
Subscribed Capital	2,750,000 0 0		
Paid-up Capital		£687,500 0 0	
II.—Fire Funds—Reserves (including Balance of Profit and Loss Account) ...		2,731,430 0 7	
III.—Life Funds—Accumulated Fund of the Life Branch ... £5,867,957 6 9			
,, ,, Annuity Branch 1,153,056 11 1			
		7,021,013 17 10	
		£10,439,943 18 5	

REVENUE FOR THE YEAR 1890.

From Fire Department—		
Net Premiums, Interest, etc.		£1,495,818 6 10
From Life Department—		
Net Premiums, Interest, etc.	£725,880 18 11	
Annuity Premiums (including £216,985 16s. 7d.		
by single payments) and Interest	266,498 7 2	
		992,379 6 1
		£2,488,197 12 11

The Accumulated Funds of the Life Department are free from liability in respect of the Fire Department, and in like manner the Accumulated Funds of the Fire Department are free from liability in respect of the Life Department.

Prospectuses and every information can be obtained at the Chief Offices.

London: 61, Threadneedle Street, E.C.   Edinburgh: 64, Princes Street.
London: (West End Branch) 8, Waterloo Place, S.W.